

**Appendix I1**  
**Biological Technical Report and Focused Surveys**  
**(Continued)**





## APPENDIX A

### Site Photographs



**Photograph 1.** Representative view of disturbed habitat with non-native grasses found within the survey area.



**Photograph 2.** View of a regularly disked field with burrow holes adjacent to commercial development.



**Photograph 3.** Representative view of non-native grassland found within the survey area. Most of the non-native grasslands are often disked on a regular basis.



**Photograph 4.** View of the artificially levied Zanja channel. Throughout the channel rodent burrows form along the earthen berm, in the large rock and concrete riprap.





**Photograph 5.** Stream bank with small rodent burrows, east of Church Street.  
Urban/Developed habitat in the background.

---

**This page intentionally left blank.**

## **APPENDIX B**

### **Faunal Species Observed**

## Faunal Species Observed

Family	Scientific Name	Common Name
Accipitridae		Kite, Eagle, Hawk Family
	<i>Accipiter cooperii</i>	Cooper's Hawk
	<i>Buteo jamaicensis</i>	Red-tailed Hawk
Anatidae		Geese and Duck Family
	<i>Anas platyrhynchos</i>	Mallard
	<i>Branta canadensis</i>	Canada Goose
Canidae		Dog Family
	<i>Canis lupus familiaris</i>	Domestic Dog
Cardinalidae		Cardinal and Grosbeak Family
	<i>Piranga ludoviciana</i>	Western Tanager
Charadriidae		Plover Family
	<i>Charadrius vociferus</i>	Killdeer
Columbidae		Pigeon and Dove Family
	<i>Columba livia</i>	Rock Pigeon
	<i>Zenaida macroura</i>	Mourning Dove
Corvidae		Crow and Jay Family
	<i>Aphelocoma californica</i>	Western Scrub-Jay
	<i>Corvus brachyrhynchos</i>	American Crow
	<i>Corvus corax</i>	Common Raven
Emberizidae		Sparrow Family
	<i>Melospiza melodia</i>	Song Sparrow
	<i>Zonotrichia leucophrys</i>	White-crowned Sparrow
Felidae		Cat Family
	<i>Felis catus</i>	Domestic Cat
Fringillidae		Finch Family
	<i>Carpodacus mexicanus</i>	House Finch
	<i>Spinus psaltria</i>	Lesser Goldfinch
Icteridae		Blackbird and Oriole Family
	<i>Euphagus cyanocephalus</i>	Brewer's Blackbird
	<i>Sturnella neglecta</i>	Western Meadowlark
Leporidae		Hare and Rabbit Family
	<i>Sylvilagus floridanus</i>	Cottontail Rabbit
Mimidae		Mockingbird and Thrasher Family
	<i>Mimus polyglottos</i>	Northern Mockingbird
Parulidae		Wood Warbler Family
	<i>Setophaga coronata</i>	Yellow-rumped Warbler
Passeridae		Old World Sparrow Family
	<i>Passer domesticus</i>	House Sparrow
Ptilonotidae		Silky Flycatcher Family
	<i>Phainopepla nitens</i>	Phainopepla

---

Family	Scientific Name	Common Name
Sciuridae		<b>Squirrel Family</b>
	<i>Otospermophilus beecheyi</i>	Ground squirrel
Sturnidae		<b>Starling Family</b>
	<i>Sturnus vulgaris</i>	European Starling
Trochilidae		<b>Hummingbird Family</b>
	<i>Calypte anna</i>	Anna's Hummingbird
Turdidae		<b>Thrush Family</b>
	<i>Turdus migratorius</i>	American Robin
Tyrannidae		<b>Flycatcher Family</b>
	<i>Tyrannus verticalis</i>	Western Kingbird
	<i>Sayornis nigricans</i>	Black Phoebe
Vireonidae		<b>Vireos Family</b>
	<i>Vireo bellii pusillus</i>	Least Bell's Vireo



# **APPENDIX J**

## **Santa Ana Sucker Habitat Assessment**



# Santa Ana Sucker Habitat Evaluation

Redlands Passenger Rail Project

5 October 2012





# **Santa Ana Sucker Habitat Evaluation Redlands Passenger Rail Project**

5 October 2012

Prepared for:

HDR Engineering, Inc.  
3230 El Camino Real, Suite 200  
Irvine, CA 92602

Prepared by:



Cardno ENTRIX  
201 N. Calle Cesar Chavez, Suite 203  
Santa Barbara, CA 93103



# Table of Contents

1 Introduction..... 1

2 Project Description..... 2

3 Santa Ana Sucker Description ..... 6

    3.1 Status ..... 6

    3.2 Species Description..... 6

    3.3 Distribution..... 6

    3.4 Critical Habitat ..... 7

4 Project Site Evaluation..... 8

    4.1 Description of site ..... 8

    4.2 Critical habitat functions ..... 8

5 Potential for Project Effects..... 9

    5.1 Construction ..... 9

    5.2 Operations ..... 9

6 Recommended Protection Measures..... 11

7 References ..... 12

# Figures

Figure 1 RPRP Footprint SAR Bridge 3.4..... 3

Figure 2 RPRP Bridge 3.4 Plan ..... 4

# Acronyms

BMP	best management practice
CDFG	California Department of Fish and Game
CIP	cast in place
CISS	concrete in steel shell
cm	centimeter
fps	feet per second
ins	inches
PCE	primary consituent element
PRD	Permit Registration Document
ROW	right-of-way
RPRP	Redlands Passenger Rail Project
SANBAG	San Bernardino Association of Governments

SCRRA	Southern California Regional Railroad Authority
SWPPP	Storm Water Pollution Prevention Plan
USFWS	U.S. Fish and Wildlife Service



# 1 Introduction

---

The Redlands Passenger Rail Project (RPRP) would implement rail improvements along the Redlands Corridor to facilitate commuter rail service between the City of San Bernardino and the University of Redlands in the City of Redlands. One part of this project is to remove and replace the existing rail bridge over the Santa Ana River. This report evaluates habitat for the Santa Ana sucker (*Catostomus santaanae*) in this segment of the river and the potential for impacts from construction and operation of the project on this species and its designated critical habitat.

## 2 Project Description

---

The RPRP would involve implementation of rail improvements along the Redlands Corridor to facilitate commuter rail service between the City of San Bernardino and the University of Redlands in the City of Redlands. The Project would include the construction of track improvements to facilitate train movements along a single track through the rail corridor with an approximately 10,000-foot-long section of passing track or siding, from just west of Richardson Street to just east of California Street (MP 5.5 to MP 7.4). The proposed track ballast and sub-grade along the 9-mile project corridor would be constructed to 50 feet in width, sufficient to support a parallel maintenance road. This would require demolition and replacement of the existing track. These improvements would adhere to standards established by the BNSF Railway and Southern California Regional Railroad Authority (SCRRA) for the rail, rail ties, ballast and subballast materials, grade crossing panels, placement of drainage structures and retaining walls, and horizontal and vertical clearances.

The Project would be constructed within an existing railroad right-of-way (ROW) owned by the San Bernardino Associated Governments (SANBAG), which averages 50 to 100 feet in width except in portions of downtown Redlands where the ROW is less than 40 feet wide. The rail improvements would also include the construction of a new train signaling and communications system.

The Project would require the replacement or retrofitting of up to six structural crossings to facilitate the loading requirements of the Metrolink trains and track foundation. Five of the six structural crossings consist of existing bridge structures, including the Santa Ana River crossing (Bridge 3.4). That existing Santa Ana River bridge would be replaced, at the same location, with a new steel beam bridge up to 365 feet long. The work would temporarily affect up to 0.84 acre and permanently affect up to 0.61 acre of Santa Ana River bed and banks (Figure 1). Construction of this crossing would take approximately nine months.

Construction access/staging would occur from the north end of the western bank. Access to the eastern bank would occur via construction of a temporary bridge crossing (earthen fill) from the west (see Figure 1). Existing bridge and bridge piers (support structures = bents) would be removed following installation of the new bridge piers. The new bridge would have up to five bents placed within the river channel compared to three (plus one at each bank) at the existing bridge, and the piers would be longer to support a second future rail track (see Figure 2). The new structural supports would be constructed behind an encircling temporary cofferdam of sheet piles or similar method, such as the use of Concrete in Steel Shell (CISS) piles, depending on contractor preference. The foundation would consist of reinforced concrete supported by bored and cast-in-place (CIP) pilings, with conventional reinforced CIP concrete piers extending up to the bridge deck. In the event that water is present in the river, it would be diverted around the work area. Best management practices (BMPs) as detailed in the project Storm Water Pollution Prevention Plan (SWPPP) will be implemented to ensure that construction materials, including concrete, do not come in contact with the river water. To minimize the potential for debris to fall into the Santa Ana River during bridge construction, a debris containment system would be installed under the bridge to catch any falling debris. If flow is present and as an additional precaution, a boom would be strung across the water feature to keep any material that escapes the containment system from being carried downstream.

Erosion, sedimentation, and hazardous materials spills or leakage from construction vehicles is also considered a potential impact to water quality. To address these issues, the project will require the contractor to conduct vehicle refueling within the staging/assembly area, a minimum of 50 feet from wetland areas. The project will include preparation of a SWPPP as well as other Permit Registration Documents (PRDs) by the project engineer or contractor. The SWPPP will identify BMPs to address potential short-term impacts and post-construction (long-term) measures to be implemented for the



Figure 1 RPRP Footprint SAR Bridge 3.4



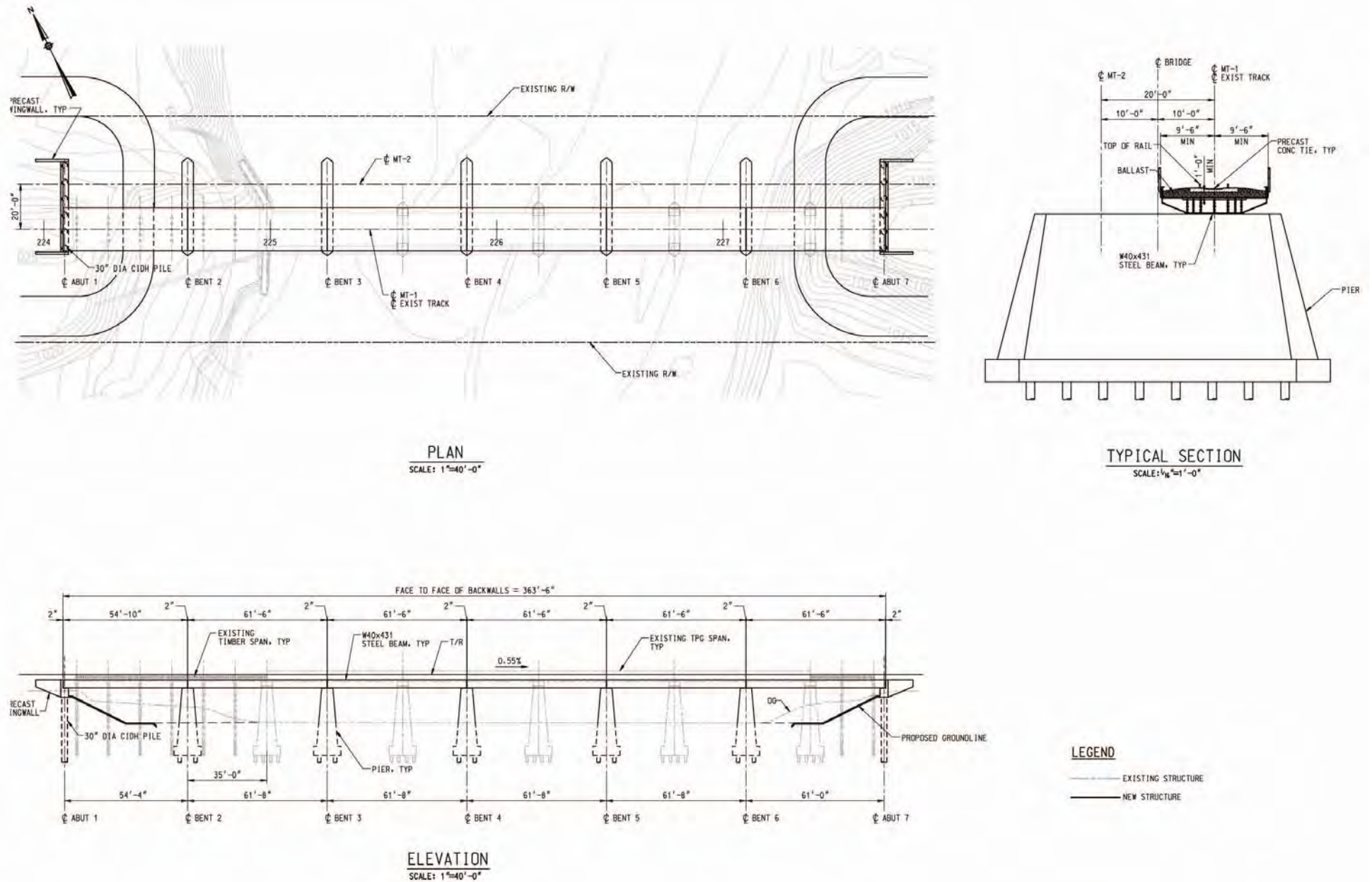


Figure 2 RPRP Bridge 3.4 Plan

project. Stormwater pollution prevention BMPs included as a part of the SWPPP would be implemented in accordance with the California Stormwater Construction Handbook (latest edition) and the Construction General Permit Order no. 2009-0009-DWQ. Construction could also involve limited dredging of material from the channel bed and/or excavation along the adjacent banks. These activities could also include the placement of fill including concrete and riprap. To minimize construction activity in the river channel, the structural improvements would be constructed in two or more increments to minimize disturbance to the channel bottom and allow for the safe passage of water flow. A similar approach would be employed for the removal of any existing structures.

If flow is present during construction, temporary diversion of water may be required. The diversion may consist of a temporary bypass using a pipe, flume, excavated channel, or alternative method that temporarily reroutes water around the construction area. The method would ultimately be at the discretion of the construction contractor. Surface water diversion BMPs would be required to prevent or reduce mingling of construction-related runoff with upstream non-construction-related runoff so as to prevent the introduction of sediment, nutrients, pesticides, and/or other pollutants to local waterways during construction.

Operation of the RPRP would involve trains every 30 minutes in the peak periods and every hour in the off-peak period. This would translate to 25 average daily round trips along the alignment during weekdays. Maintenance of the rail ROW is currently the responsibility of BNSF, which is the current operator of the rail line. This includes routine maintenance of the track and track ties, grade crossings, and communication system. Vegetation management and weed abatement would also be required along the ROW. A contractor hired by SANBAG would conduct all maintenance activities and inspections, including those for the Santa Ana River Bridge, in accordance with SCRRA/Metrolink and BNSF standard practices.

## 3 Santa Ana Sucker Description

---

### 3.1 Status

The Santa Ana sucker was federally listed by the U.S. Fish and Wildlife Service (USFWS) as a threatened species on April 12, 2000 (65 FR 19686, USFWS 2004). In California, it is listed as a species of special concern (California Department of Fish and Game (CDFG) 2011).

### 3.2 Species Description

The Santa Ana sucker, a member of the sucker family of fishes (Catostomidae), is a small, short-lived fish generally less than 6.3 inches (ins) (16 centimeters (cm)) in length; however, they have been collected at lengths up to 8 ins (20.3 cm) (Russell 2010, as cited in USFWS 2012). Santa Ana suckers have downward oriented mouths with fleshy, protrusible lips and jaws with cartilaginous scraping edges which allow them to suck up small invertebrates, algae, detritus, diatoms, fish eggs, and other organic matter for food (Moyle 2002, USFWS 2004). Coloration is typically silvery-white on the belly and dark gray on the sides and back, with irregular dorsal blotches on the sides and faint patterns of pigmentation arranged in lateral stripes (Moyle 2002).

The Santa Ana sucker is usually found in permanent pools and runs of small to medium size (less than 7 meters in width), and in water ranging in depth from a few centimeters to greater than a meter (USFWS 2004). The preferred substrate for this species includes gravel, rubble, and boulder and is generally coarse; although, individuals have been found in streams with sand/mud substrates (USFWS 2004). Flow throughout the habitat is described as slight to swift; some populations occur in streams that are subject to periodic and severe flooding (USFWS 2004). This species prefers overhanging riparian plants for shelter, and does not require streamside cover when larger, deeper holes and riffles are present for refuge (USFWS 2004).

Santa Ana sucker spawning may occur between mid-March and early-July, with peak activity usually in April (Moyle 2002). Spawning habitat typically consists of gravelly-riffles. The fertilized eggs adhere to the substrate and hatch within 30 days. Females are very fecund and can produce between 4,423 and 16,151 eggs (USFWS 2004). The high fecundity of the Santa Ana sucker, in combination with early sexual maturity and a protracted spawning period allows this species to quickly repopulate streams following periodic flood events that could decimate populations (Moyle 1976 as cited in USFWS 2000). Santa Ana suckers in the Santa Clara River generally mature during their second summer and die at the end of their third summer although some individuals have been observed to survive through a fourth or even fifth summer (Moyle 2002, Drake 1988 as cited in USFWS 2012).

### 3.3 Distribution

Historically, the Santa Ana sucker was native to the rivers and larger streams of the Los Angeles Basin (Los Angeles, San Gabriel, and Santa Ana river drainages) in Los Angeles, Orange, Riverside, and San Bernardino counties (USFWS 2000). There are very few records of the historic range of this species, but it is presumed that Santa Ana suckers ranged from near the Pacific Ocean to the uplands of the Los Angeles and San Gabriel river systems and at least up to the San Bernardino National Forest boundary in the Santa Ana River (Swift et. al. 1993 as cited in USFWS 2000).

Currently, native noncontiguous populations of Santa Ana suckers occur in the Santa Ana River, lower Big Tiguanga Creek in the Los Angeles River drainage, and East, West, and North forks of the San Gabriel River (USFWS 2012). A small population is located in the Santa Clara River, although it is believed that this is an introduced population (USFWS 2004). In the Santa Ana River, Santa Ana suckers are found in the lower river and its tributaries from Prado Dam to near California State Highway 90 and in the middle

river and its tributaries from south of La Cadena Drive, where wastewater discharges provide perennial flow, to Prado Dam. It is believed that the Santa Ana sucker has lost approximately 70 percent of its historical native range in the Santa Ana River watershed and 75 percent of its historic range overall (USFWS 2000).

### **3.4 Critical Habitat**

On December 14, 2010 (75 FR 77962–78027, USFWS 2010), critical habitat was revised for Santa Ana sucker, designating critical habitat in Los Angeles, Orange, Riverside, and San Bernardino counties, California. The designated critical habitat includes approximately 9,331 acres (3,776 hectares) of Federal, State, and private lands. Three units were designated (Unit 1: Santa Ana River, Unit 2: San Gabriel River, and Unit 3: Big Tujunga Creek, a tributary to Los Angeles River). Designated areas that were occupied by the Santa Ana sucker at the time of listing contain the physical and biological features essential to the conservation of Santa Ana sucker and may require special management considerations or protection. Additionally, certain areas have been designated critical habitat that are outside areas occupied by the Santa Ana sucker at the time of listing that are essential for conservation of the species. These areas are essential because they contribute to the maintenance of the physical and biological features within the occupied critical habitat by providing sources of water and coarse sediments necessary to maintain all life stages of the Santa Ana sucker (USFWS 2012).

The primary constituent elements (PCEs) for the Santa Ana sucker are:

1. A functioning hydrological system within the historical geographic range of the species that experiences peaks and ebbs in water volume (naturally or regulated) that encompasses areas that provide or contain sources of water and coarse sediment necessary to maintain all life stages, including adults, juveniles, larvae, and eggs.
2. Stream channel substrate with a mosaic of loose sand, gravel, cobbles, and boulders in a series of riffles, runs, pools, and shallow sandy stream margins necessary to maintain various life states of the species.
3. Water depths greater than 1.2 ins (3 cm) and bottom water velocities greater than 0.01 feet per second (0.03 meters/second).
4. Clear or only occasionally turbid water.
5. Water temperatures less than 88°F (30°C).
6. Instream habitat that includes food sources (e.g., phytoplankton, zooplankton, and aquatic invertebrates) and associated vegetation (e.g., aquatic emergent plants and adjacent riparian vegetation) that provides shading to reduce water temperature, shelter during periods of high water velocity, and protective cover from predators.
7. Areas within perennial stream courses that may be periodically dewatered, but that serve as connective corridors between occupied or seasonally occupied habitat and through which the species may move when the habitat is wetted.

All occupied designated critical habitat units contain these PCEs in the appropriate quantity and spatial arrangement essential to conservation of the species.

The proposed project is located near the upstream edge of Unit 1, Subunit 1B, in an area that is not currently occupied due to the barrier to upstream movement at La Cadena Drive. This subunit was considered occupied at the time of listing and provides sources of water (PCE 1) and coarse sediment (PCE 2) for downstream occupied habitat (USFWS 2010). Because the project site is not currently occupied, PCEs 3-7 do not apply.

## 4 Project Site Evaluation

---

### 4.1 Description of site

The existing rail bridge over the Santa Ana River is located about mid way between the East Orange Show Road (upstream) and South Waterman Avenue (downstream) road crossings, and is approximately 0.9 mile downstream of Tippecanoe Avenue. The active river channel is approximately 250 feet wide at the rail crossing but wider upstream and narrower downstream. Flow is intermittent at this location and results from storm runoff during the rainy season and releases from Seven Oaks Dam in the dry season prior to fall/winter rains. The remainder of the time the channel is dry.

Substrate at the project site is primarily sand with some coarser material mixed in. Sand dominates the river bed downstream to the Prado Basin. Course materials (gravel and cobbles) from upstream sources pass through the project area during larger runoff events when water velocity is high enough to transport them.

A number of barriers to upstream fish movement occur downstream of the project site. These include grade control structures at the I-10 freeway crossing and La Cadena Drive. Downstream distance to occupied habitat from the project site is approximately 2.25 miles.

The river banks support a mix of native and non-native shrubs and trees.

### 4.2 Critical habitat functions

As noted above, the project area is within critical habitat Unit 1, Subunit 1B in an area that is not currently occupied by the species but provides transit of water (PCE 1) and coarse materials (PCE 2) downstream to occupied habitat. The existing rail bridge supports do not appear to substantially affect water or sediment transport downstream to occupied habitat based on hydraulic modeling which shows that the water surface elevation would be 1017.3 feet with a velocity of 15.6 feet per second (fps) at the bridge during a 100-year flow event (HDR 2012). The existing bridge has three supporting piers in the river channel, another one on the south bank, and a wingwall on the north bank (Figure 2). The piers are 6.5 feet wide and approximately 25 feet long (oriented parallel to river flow). The small area taken up by the piers is less than 9 percent of the river width from base of bank to base of bank. It is even less for bank-full width.



## 5 Potential for Project Effects

---

### 5.1 Construction

Construction of the new bridge would result in disturbances within the river channel and on the banks related to access, installation of temporary cofferdam(s) or CISS piles, dredging in the river bed and/or excavation along the banks, and removal of the cofferdam(s) or CISS piles when construction is completed. Dredging and/or excavation of the river banks under the bridge to widen the channel would have the potential to cause suspension of fine sediments if the work occurs in flowing water or the disturbed soils later are exposed to flowing water before those soils are stabilized. Cofferdam or CISS pile installation activities would temporarily disturb the river bed and would isolate a small amount of the bed from flows since the work could be conducted during at least some periods of flow. These small disturbances would not adversely affect water or sediment transport downstream. The temporary cofferdam(s) or CISS piles would isolate construction activities, including pouring of concrete, from the waterway. Therefore, construction-related impacts on turbidity and suspension of sediments would be limited to the actual installation and removal of the temporary cofferdam(s) or CISS piles, with removal more likely to suspend sediments than installation. Removal of the existing bridge support structures in and adjacent to the river channel would have similar effects on sediment suspension. Their removal would allow water to pass through those locations.

Construction of a temporary earthen fill access road down the west bank and across the river to the east bank would place sediments within the river channel that could be eroded by river flows during the work period, when the road is present. If any flow is present or becomes present during the work, portions of the fill could be washed downstream. Driving equipment across that flow would suspend sediments and have the potential to wash pollutants off the equipment into the water. The source of earthen material used and duration that the road is in place would determine the potential for and type of sediments that could be suspended and carried downstream with effects as described below.

Diversion of flow away from specific work areas, such as bank excavation or support structure construction, would have the potential to result in temporary suspension of sediment as the diversion is put in place and then when it is removed. Operation of the diversion could also cause sediment suspension if adequate energy dissipation is not included at the discharge location.

Sediments suspended during low-flow periods would primarily be sand and silt that would rapidly settle before reaching occupied Santa Ana sucker habitat. Sediments suspended by construction activities during higher flows would add a small increment to the suspended sediment load caused by the higher velocity water that would not adversely affect occupied habitat downstream. Construction of the cofferdam(s) or CISS piles would normally be limited to the period between April and September, and is expected to take approximately four weeks, when river flows are relatively low, resulting in little to no transport of fine sediment downstream to occupied habitat.

Leaks of fuel, hydraulic fluid, and/or lubricants from equipment working in or above the river channel, although unlikely, have a potential to contaminate dry or moist river bed sediments when no flow is present. This contamination, if not cleaned up immediately, could be transported downstream during higher flow events to occupied Santa Ana sucker habitat. Leaks into flowing water would be transported downstream and could reach occupied habitat.

### 5.2 Operations

The new bridge supports are not anticipated to alter sediment and water transport downstream. Each would be the same width as the existing piers but approximately 20 feet longer (parallel to flow). The river channel under the new bridge would be widened, particularly on the north side, so that the five new piers

would be in the channel. Hydraulic modeling shows that, relative to the existing bridge, the new bridge would result in a slightly lower water surface elevation and velocity during a 100-year flow event (HDR 2012). Thus, the new bridge would not impede water transport under the bridge. The new bridge would not change water surface elevation downstream of the bridge and thus would not affect water or sediment transport downstream.

The new armoring along the reconfigured west bank would add a small amount of turbidity to river flows during initial runoff events after construction is completed that wash fines on the rock surfaces off into the river and/or when higher flows contact the new rock and wash off the fine sediments adhering to the rock surface. The input of sediment would be temporary and would add a negligible amount to the existing sediment load during such runoff events with no adverse effects on occupied habitat downstream.

Operation of the trains at an average of 25 round trips per day would have the potential to contribute small amounts of pollutants, such as lubricants and fine metal/plastic particles from normal wear of moving parts (e.g., wheels and brakes) under the train, to the river through dry fallout or rainfall runoff from the train/bridge. These could add to pollutants downstream in occupied habitat during runoff events that transport water and sediments downstream. The quantities of these pollutants are expected to be small, particularly if the trains are regularly maintained and cleaned. Maintenance activities for the track and bridge also have the potential to introduce pollutants into the river in a similar manner.

## 6 Recommended Protection Measures

---

The following measures are recommended to minimize the potential for effects of the project on Santa Ana sucker critical habitat and downstream occupied habitat.

1. Provide environmental training for all construction workers that discusses the Santa Ana sucker, its critical habitat, and protection of habitat and water quality.
2. Include in the SWPPP measures for immediate cleanup of spilled or leaked pollutants within the river channel, energy dissipation for diversion outflows, and monitoring/maintenance of BMPs during construction.
3. Place culverts under temporary access road fill sized to pass maximum anticipated low flows in the river, and remove temporary access road fill (and culverts) prior to any expected higher river flows that could wash out that road.
4. Monitor during construction activities in the river channel to ensure that pollutants are not introduced into the river sediments or water.
5. Maintain and clean rail cars to minimize the amount of lubricants and metal/plastic particles from normal wear that could fall into the river channel as the trains cross the bridge.
6. Provide environmental training to bridge/rail maintenance personnel that includes BMPs to use to prevent pollutants from entering the river.

## 7 References

---

- California Department of Fish and Game (CDFG). 2011. Special Animals. Biogeographic Data Branch. California Natural Diversity Database.  
<http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf>
- HDR Engineering, Inc. (HDR). 2012. Hydraulic Impact Analysis – Santa Ana River Bridge 3.4. Draft Report. August.
- Moyle, P. B. 2002. *Inland fishes of California*. Revised and enlarged. University of California Press, Berkeley.
- U.S. Fish and Wildlife Services (USFWS). 2000. 65 FR 19686. Endangered and threatened wildlife and plants; threatened status for the Santa Ana sucker. *Federal Register* 65: 19686–19698.
- U.S. Fish and Wildlife Services (USFWS). 2004. Endangered and Threatened Wildlife and Plants; Final Rule to Designate Critical Habitat for the Santa Ana Sucker. *Federal Register* 69(38).  
<http://www.cdpr.ca.gov/docs/endspec/estext/fr022604.pdf>
- U.S. Fish and Wildlife Services (USFWS). 2010. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for Santa Ana Sucker. *Federal Register* 75(239):77962-78027.
- U.S. Fish and Wildlife Services (USFWS). 2012. Recovery Outline for Santa Ana Sucker (*Catostomus santaanae*). March 2012.

# **APPENDIX K**

## **San Bernardino Kangaroo Rat Report**



San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*)  
Habitat Assessment & Focused Survey Report  
for the  
Redlands Passenger Rail Project at the Santa Ana River Crossing

Located within an unsectioned portion of T1S, R4W, San Bernardino Base and  
Meridian, U.S. Geological Survey – San Bernardino South Quadrangle,  
City of San Bernardino, San Bernardino County, California

---

Prepared for:

**HDR Engineering, Inc.**  
3230 El Camino Real Suite 200  
Irvine, CA 92602  
Contact Person: Ingrid Eich  
Environmental Sciences Section Manager  
Phone Number: (714) 730-2389

Prepared by:

**Tom Dodson & Associates (TDA)**  
2150 North Arrowhead Avenue  
San Bernardino, California 92405  
Contact Person: Shay Lawrey  
Phone Number: (909) 882-3612

**Certification:** I hereby certify that the statements furnished herein, and in the attached exhibits present data and information required for this Biological Survey to the best of my ability, and the facts, statements, and information presented are true and correct to the best of my knowledge and belief. This report was prepared in accordance with professional requirements and recommended protocols issued in (USFWS permit No. TE-094308-0)



---

Shay Lawrey, Ecologist/Regulatory Specialist

**August, 2012**





## Table of Contents

<b>1</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>2</b>	<b>LOCATION AND SETTING .....</b>	<b>2</b>
<b>3</b>	<b>METHODS.....</b>	<b>2</b>
3.1	RESEARCH.....	2
3.2	SBKR HABITAT ASSESSMENT .....	2
3.3	SBKR TRAPPING SURVEY .....	2
<b>4</b>	<b>RESULTS .....</b>	<b>3</b>
4.1	RESEARCH.....	3
4.2	FIELD SURVEY .....	11
4.2.1	<i>Observed Habitats</i> .....	11
4.2.2	<i>Commonly Observed Plants and Wildlife</i> .....	12
4.3	SBKR TRAPPING SURVEYS.....	13
<b>5</b>	<b>CONCLUSIONS.....</b>	<b>13</b>
5.1	SAN BERNARDINO KANGAROO RAT CRITICAL HABITAT .....	14
5.2	JURISDICTIONAL WATERS & REGULATORY ISSUES.....	15
<b>6</b>	<b>REFERENCES .....</b>	<b>19</b>

## TABLES

- Table 1. Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area at the SAR.
- Table 2. Survey dates, weather conditions, and moon phases
- Table 3. Rodent species trapped

## FIGURES *(located at the end of the document)*

- Figure 1. Regional Location Map
- Figure 2. Location Map
- Figure 3. SBKR Critical Habitat within Subject Property
- Figure 4. SBKR Survey Areas & Trapline Locations

## PHOTOS *(located at the end of the document)*



# 1 Executive Summary

The San Bernardino County Associated Governments (SANBAG) proposes to construct the Redlands Passenger Rail Project (Project) which consists of rail improvements along the Redlands Corridor to facilitate commuter rail service between the City of San Bernardino, at E Street and the University of Redlands in the eastern portion of the City of Redlands. Project construction includes demolition and replacement of the existing track, installation of new continuously welded rail on concrete ties and new ballast and sub-ballast sections throughout the rail corridor, and replacement or retrofitting of bridge crossings. Construction of the proposed Project would begin in 2015 and would proceed generally from the west of E Street to the SAR and similarly from the SAR east to Cook Street.

One bridge crossing to be replaced is the bridge structure at the Santa Ana River. A steel beam bridge will be constructed in replacement of the existing structure. Construction access/staging would occur from the north end of the western bank. If flow is present during construction, a temporary diversion of water may be required. The diversion may consist of a temporary bypass using a pipe, flume, excavated channel, or alternative method that temporarily reroutes water around the construction area. Work zone isolation at the SAR may be required through the installation of a cofferdam and/or construction work pads within the wet area.

The existing bridge and bridge piers would be removed prior to installation of new bridge piers and the proposed design would accommodate Santa River Trail Phase III along the western bank. A debris containment system will be installed under the bridge to catch any falling debris from the demolition activities. Construction at the SAR may involve limited dredging of material from the channel bed and/or excavation along the adjacent banks. These activities could also include the placement of fill including concrete and riprap. The new bridge will be up to 365 feet in length and will result in approximately 3.61 acres of temporary disturbance to the Santa Ana River channel bed/banks.

For this project HDR Engineering, Inc. (HDR) prepared a biological constraints analysis in October 2010. Based on that analysis, HDR determined that potentially suitable habitat for the San Bernardino kangaroo rat (*Dipodomys merriami parvus*) [SBKR] exists in the Project area. In 2012, HDR contracted Tom Dodson & Associates (TDA) to conduct a focused SBKR habitat assessment of the alignment and conduct follow-on trapping surveys if required. On May 8, 2012, TDA Biologist, Shay Lawrey conducted a habitat suitability assessment for SBKR along the entire alignment. Ms. Lawrey found that the area surrounding the SAR bridge crossing was the only area along the alignment suitable for SBKR. Since this area warranted follow-on surveys, Ms. Lawrey conducted a focused trapping survey between May 18 and May 23, 2012.

No SBKR were trapped over the course of the 5-night protocol survey. Therefore, SBKR are considered absent from the site. Due to the absence of SBKR on site, there is no risk of impacting SBKR directly by implementing this project. However, the project site is mapped within critical habitat (CH) designated by the U.S. Fish and Wildlife Service (USFWS) for SBKR. This project has a federal nexus via permitting and funding, therefore project-related impacts to CH must be addressed through formal consultation with the USFWS.

## 2 Location and Setting

The SBKR study area is located at the existing SAR rail road bridge crossing, north of Interstate 10 (I-10) freeway and Carnegie Drive, east of Waterman Avenue, south and southeast of Orange Show Road, and west of Tippecanoe Avenue in the City of San Bernardino, California (Figures 1-4). The study area can also be found on the U.S. Geological Survey (USGS) – San Bernardino South quadrangle, 7.5 Minute Series topographic map within an unsectioned portion of Township 1 South and Range 4 West.

The local area climate is semi-arid, with an average annual temperature of 67°F and a range from 25-110°F. The rainy season begins in November and continues through March, with the quantity and frequency of rain varying from year to year. The average annual rainfall is approximately 18.1 inches. The general vicinity of the subject property consists of open space, vacant land, Eucalyptus groves, and commercial uses.

## 3 Methods

### 3.1 Research

A literature review was also conducted to examine data gathered from various biological surveys previously conducted in the vicinity of the Project area. The literature review included a review of standard field guides and texts on sensitive and non-sensitive biological resources, as well as the following sources:

- ❖ *Natural Environmental Study (NES) prepared for the SART Phase III Project by Tom Dodson & Associates for the County of San Bernardino Regional Parks Department;*
- ❖ *San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*) Presence/Absence Trapping Studies San Bernardino International Airport South Drainage Channel, San Bernardino, California prepared by Natural Resources Assessment, Inc., May 2012.*
- ❖ *Presence/Absence Trapping Studies for the San Bernardino Kangaroo Rat Santa Ana River Trails Phase III Tippecanoe Avenue to Orange Show Road City of San Bernardino, San Bernardino County, California Prepared by ENVIRA, March 2011.*
- ❖ *General Biological Assessment & Focused Survey Report for the Mountain View Avenue Extension & Widening Project prepared by Tom Dodson & Associates, 2008.*

### 3.2 SBKR Habitat Assessment

On May 8, 2012 TDA biologist, Shay Lawrey walked the alignment to visually assess the site conditions. During the site walk over, Ms. Lawrey looked for burrows, tail drags, tracks, and scat indicative of kangaroo rats. She also looked at the soil type and level of friability as well as habitat type and habitat structure.

### 3.3 SBKR Trapping Survey

Ms. Lawrey has a decade of experience with SBKR and is a biologist permitted (USFWS permit number TE 094308-0) by the USFWS to trap and handle SBKR. Ms. Lawrey conducted the focused live-trapping surveys between May 18 and May 23, 2012 according to protocols established for the SBKR. The protocol calls for five consecutive nights of trapping, when the animal is active above ground at night.

During the trapping session, a total of 100 traps (five trap lines consisting of 20 traps) were set. The trap lines consisted of 12-inch, Sherman live traps placed 10 meter apart. Traps were placed in suitable habitat areas, concentrating on locating traps in areas containing sandy soils, relatively free of debris and containing suitable vegetation. Areas with kangaroo rat/small mammal sign (scat, burrows, tail drags) were also targeted. Each trap was baited with a mixture of bird seed and rolled oats placed at the back of the traps. The traps were set at dusk each night and inspected once during the night and at dawn each morning. All animals were identified and released unharmed at the point of capture. Daily notes included weather conditions such as temperature, wind speed, cloud cover, precipitation and moon phase. Site characteristics such as soils, topography, the condition of the plant communities, and evidence of human use of the site were also noted.

## 4 Results

### 4.1 Research

Despite its location in the middle of a dense urban area, the SAR floodplain maintains considerable habitat value. In addition to the fundamental flood control and water-related functions of the SAR, this watercourse serves as a wildlife habitat linkage, corridor, and buffer in an urban context, linking habitats that are separated by development and providing wildlife dispersal and migration pathways. The floodplain also buffers plants and wildlife from surrounding human disturbance. For these and other reasons the habitats in SAR floodplain, and by default the SBKR study area, support a high level of natural resource diversity and richness. Table 1 below provides a list of sensitive species with a potential to occur in the vicinity of the SAR bridge crossing and information as to the presence of suitable habitat and/or CH.

**Table 1: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area at the SAR.**

Common Name	Scientific Name	Status	General Habitat	Habitat Present / Absent	Rationale
<b>Plants</b>					
bristly sedge	<i>Carex comosa</i>	CNPS 2.1	Marshes and swamps.	A	Grows along lake margins and wet places which are absent.
California bedstraw	<i>Galium californicum ssp. primum</i>	CNPS 1B	Chaparral, lower montane coniferous forest.	A	Grows in shade of trees and shrubs at the lower edge of the pine belt, in pine forest-chaparral ecotone.
California satintail	<i>Imperata brevifolia</i>	CNPS 2.1	Coastal scrub, chaparral, riparian scrub, mojavean scrub, meadows and seeps (alkali).	HP	Marginal habitat present. Species not found during survey.

Common Name	Scientific Name	Status	General Habitat	Habitat Present / Absent	Rationale
Gambel's water cress	<i>Nasturtium gambelii</i>	FE/ST	Marshes and swamps.	A	Found in freshwater and brackish marshes at the margins of lakes and along streams, in or just above the water level.
Horn's milk-vetch	<i>Astragalus hornii</i> var. <i>hornii</i>	CNPS1B	Meadows and seeps, playas.	A	Grows along lake margins, alkaline sites which are absent.
Los Angeles sunflower	<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	CNPS 1A	Marshes and swamps (coastal salt and freshwater). Historical from southern California.	A	Marsh/swamp habitat is not present.
marsh sandwort	<i>Arenaria paludicola</i>	FE/SE/ CNPS1B	Marshes and swamps.	A	No dense mats of typha, juncus, scirpus, etc. and no freshwater marsh.
mesa horkelia	<i>Horkelia cuneata</i> ssp. <i>puberula</i>	CNPS 1B	Chaparral, cismontane woodland, coastal scrub.	HP	Suitable habitat present but this species is not documented in the local vicinity of the Project and was not found during survey.
Nevin's barberry	<i>Berberis nevinii</i>	FE/SE	Chaparral, cismontane woodland, coastal scrub, riparian scrub.	A	Preferred steep, north-facing slopes are absent from site.
Parish's gooseberry	<i>Ribes divaricatum</i> var. <i>parishii</i>	CNPS 1A	Riparian woodland.	HP	Suitable habitat present. Species not observed during survey.
Parish's desert-thorn	<i>Lycium parishii</i>	CNPS 2.3	Coastal scrub, sonoran desert scrub.	HP	Suitable habitat present. Species not observed during survey.
Parish's bush-mallow	<i>Malacothamnus parishii</i>	CNPS 1A	Chaparral, coastal sage scrub.	HP	Suitable habitat present. Species not observed during survey.
Parry's spineflower	<i>Chorizanthe parryi</i> var. <i>parryi</i>	CNPS 1B	Coastal scrub, chaparral.	HP	Suitable habitat present. Species not observed during survey.
Plummer's mariposa-lily	<i>Calochortus plummerae</i>	CNPS 1B	Coastal scrub, chaparral, grassland, lower montane coniferous forest.	HP	Suitable habitat present. Species not observed during survey.
Pringle's monardella	<i>Monardella pringlei</i>	CNPS 1A	Coastal scrub.	HP	Suitable habitat present. Species not observed during

Common Name	Scientific Name	Status	General Habitat	Habitat Present / Absent	Rationale
					survey.
Robinson's pepper-grass	<i>Lepidium virginicum</i> var. <i>robinsonii</i>	CNPS 1B	Chaparral, coastal scrub.	HP	Suitable habitat present. Species not observed during survey.
Salt Spring checkerbloom	<i>Sidalcea neomexicana</i>	CNPS 2.2	Alkali playas, brackish marshes, chaparral, coastal scrub, lower montane forest.	A	Species requires alkali springs and marshes which are absent from site.
salt marsh bird's-beak	<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>	FE/SE	Coastal salt marsh, coastal dunes.	A	Limited to the higher zones of the salt marsh habitat
San Bernardino aster	<i>Symphyotrichum defoliatum</i>	CNPS 1B	Meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, grassland.	A	Requires vernal mesic grassland, ditches, streams and springs. Species not observed during SBKR survey or HDR focused plant surveys.
Santa Ana River woollystar	<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	FE/SE	Coastal scrub, chaparral.	HP	Suitable habitat present. Species was observed approx. 150 meters outside of the Project boundaries.
slender-horned spineflower	<i>Dodecahema leptoceras</i>	FE/SE	Chaparral, coastal scrub (alluvial fan sage scrub).	HP	Suitable habitat present. Species documented in local vicinity, but not observed within study area during focused survey.
smooth tarplant	<i>Centromadia pungens</i> ssp. <i>laevis</i>	CNPS 1B	Valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland.	A	Grows in alkali meadow, alkali scrub which is absent.

### ***Fish***

arroyo chub	<i>Gila orcuttii</i>	SSC	Los Angeles basin south coastal streams.	A	Project abuts dry sandy river habitat. This species occurs in slow water stream sections with mud or sand bottoms.
Santa Ana sucker	<i>Catostomus santaanae</i>	FT	Endemic to Los Angeles basin south coastal streams.	A/ CH	Nearest location is d/s of La Cadena at the Rialto Drain. CH in Project alignment

Common Name	Scientific Name	Status	General Habitat	Habitat Present / Absent	Rationale
Santa Ana speckled dace	<i>Rhinichthys osculus ssp. 3</i>	SSC	Headwaters of the Santa Ana and San Gabriel rivers. May be extirpated from the Los Angeles river system.	A	Requires permanent flowing streams with summer water temps of 17-20 c.

### Reptiles & Amphibians

coast (San Diego) horned lizard	<i>Phrynosoma coronatum (blainvillii population)</i>	SSC	Inhabits coastal sage scrub and chaparral in arid and semi-arid climate conditions	HP	Species observed in vicinity.
northern red-diamond rattlesnake	<i>Crotalus ruber ruber</i>	SSC	Chaparral, woodland, grassland, & desert areas from coastal San Diego County to the eastern slopes of the mountains.	A	Occurs in rocky areas & dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.
orange-throated whiptail	<i>Aspidoscelis hyperythra</i>	SSC	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats.	HP	Prefers washes & other sandy areas with patches of brush & rocks. Species not observed during general biological surveys, but note that focused herpetological surveys were not conducted.
Sierra Madre yellow-legged frog	<i>Rana muscosa</i>	FE	Federal listing refers to populations in the San Gabriel, San Jacinto & San Bernardino mountains only.	A	Always encountered within a few feet of water.
silvery legless lizard	<i>Anniella pulchra pulchra</i>	SSC	Sandy or loose loamy soils under sparse vegetation.	A	Soil moisture is essential. They prefer soils with a high moisture content. Soils on site are dry.

### Birds

burrowing owl	<i>Athene cunicularia</i>	SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation.	HP	Suitable habitat present adjacent to trail alignment between Orange Show Road and California Street. Species or evidence
---------------	---------------------------	-----	---	----	--



Common Name	Scientific Name	Status	General Habitat	Habitat Present / Absent	Rationale
					such as feathers, castings , white wash or burrows were not observed during any of the field work including focused surveys conducted by HDR
coastal California gnatcatcher	<i>Poliophtila californica californica</i>	FT	Obligate, permanent resident of coastal sage scrub below 2500 ft in southern California.	A	Species not observed in local vicinity for over 10 years. RAFSS is not the preferred habitat of this species.
least Bell's vireo	<i>Vireo bellii pusillus</i>	FE/SE	Summer resident of southern California in riparian habitat in vicinity of water or in dry river bottoms; below 2000 ft.	P	Observed during survey.
loggerhead shrike	<i>Lanius ludovicianus</i>	SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, & riparian woodlands, desert oases, scrub & washes.	P	Suitable habitat present and species observed.
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE/SE	Riparian woodlands in southern California.	P/CH	Portions of the Project are mapped within CH. Species is observed in Project area near Waterman Avenue.
yellow-breasted chat	<i>Icteria virens</i>	SSC	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses.	HP	Suitable habitat present. Species observed in local vicinity.
western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	FC/SE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	A	Nests in riparian jungles of willow. Habitat is not suitable for this species.
yellow warbler	<i>Dendroica petechia brewsteri</i>	SSC	Riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores, & alders for nesting & foraging.	HP	Suitable habitat present. Species not seen during survey, but note focused avian surveys were not conducted.

#### **Mammals**

American badger	<i>Taxidea taxus</i>	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous	HP	Suitable habitat present and species documented in vicinity.
-----------------	----------------------	-----	--	----	--

Common Name	Scientific Name	Status	General Habitat	Habitat Present / Absent	Rationale
			habitats, with friable soils.		
Los Angeles pocket mouse	<i>Perognathus longimembris brevinasus</i>	SSC	Lower elevation grasslands & coastal sage communities in and around the Los Angeles basin.	P	Suitable habitat present and species documented in vicinity. Species not observed during survey.
northwestern San Diego pocket mouse	<i>Chaetodipus fallax fallax</i>	SSC	Coastal scrub, chaparral, grasslands, sagebrush, etc. In western San Diego co.	P	Suitable habitat present. Species observed in vicinity and found during survey.
pallid bat	<i>Antrozous pallidus</i>	SSC	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting.	A	No suitable roosting sites.
pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>	SSC	Variety of arid areas in southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian	A.	Species found in rocky areas with high cliffs
San Bernardino kangaroo rat	<i>Dipodomys merriami parvus</i>	FE	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains.	P/CH	Project area mapped within CH. Species was observed during survey and is documented in Project area.
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	FE/ST	Primarily annual & perennial grasslands, but also occurs in coastal scrub & sagebrush with sparse canopy cover.	A	Out of species range.
San Diego black-tailed jackrabbit	<i>Lepus californicus bennettii</i>	SSC	Open shrub / herbaceous & tree / herbaceous edges.	HP	Suitable habitat present. Species not observed during survey.
San Diego desert woodrat	<i>Neotoma lepida intermedia</i>	SSC	Coastal scrub of southern California from San Diego county to San Luis Obispo county.	P	Suitable habitat present. Species documented in vicinity and observed during survey.
southern grasshopper mouse	<i>Onychomys torridus ramona</i>	SSC	Desert areas, especially scrub habitats with friable soils for digging.	HP	Suitable habitat present. Species observed in vicinity.

Common Name	Scientific Name	Status	General Habitat	Habitat Present / Absent	Rationale
			Prefers low to moderate shrub cover.		
western mastiff bat	<i>Eumops perotis californicus</i>	SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral etc.	A	No suitable habitat on site. Roosts in crevices in cliff faces, high buildings, & tunnels.
western yellow bat	<i>Lasiurus xanthinus</i>	SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats.	HP	Suitable habitat present.

#### ***Insects***

Delhi Sands flower-loving fly	<i>Rhaphiomidas terminatus abdominalis</i>	FE	Found only in areas of the Delhi sands formation in southwestern San Bernardino & northwestern Riverside counties.	A	Requires fine, sandy soils, often with wholly or partly consolidated dunes & sparse vegetation.
-------------------------------	--	----	--	---	---

**Coding of Terms:** Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is, or may be present. The species may be present. Present [P] - the species is present. Critical Habitat [CH] - Project footprint is located within a designated CH unit, but does not necessarily mean that appropriate habitat is present.

Status: Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT); Federal Candidate (FC), Federal Species of Concern (FSC); State Endangered (SE); State Threatened (ST); Fully Protected (FP); State Rare (SR); State Species of Special Concern (SSC); California Native Plant Society (CNPS) 1A- presumed extinct in California, 1B - Rare, Threatened or Endangered in California and elsewhere, 2 - Rare, Threatened or Endangered in California but more common elsewhere, 3 - Plants for which more information is needed, 4 - Plants with a limited distribution.

Of the species listed in the table above, four (4) sensitive small mammal species have a high potential for presence in the vicinity of the trapping survey area including the SBKR, San Diego pocket mouse, Los Angeles pocket mouse, and San Diego desert woodrat. Specific species background information for these four small mammals is provided for reference below. Please note that only the SBKR requires specific survey protocols to establish presence or absence. These specific survey protocols are required for areas where impacts may occur to the sensitive species or their occupied habitat. The remaining species are usually identified through casual observation while trapping for targeted species.

**SBKR** - The SBKR is one of several kangaroo rat species in its range. The Dulzura (*Dipodomys simulans*), the Pacific kangaroo rat (*Dipodomys agilis*) and the Stephens kangaroo rat (*Dipodomys stephensi*) occur in areas occupied by the San Bernardino kangaroo rat, but these other species have a wider habitat range. The habitat of the San Bernardino kangaroo rat is described as being confined to primary and secondary alluvial fan scrub habitats, with sandy soils deposited by fluvial (water) rather than aeolian (wind) processes. Burrows are dug in loose soil, usually near or beneath shrubs. The SBKR is one of three subspecies of the Merriam's kangaroo rat. The Merriam's

kangaroo rat is a widespread species that can be found from the inland valleys to the deserts. The subspecies known as the San Bernardino kangaroo rat, however, is confined to inland valley scrub communities, and more particularly, to scrub communities occurring along rivers, streams and drainage. Most of these drainages have been historically altered as a result of flood control efforts and the resulting increased use of river resources, including mining, off-road vehicle use and road and housing development. This increased use of river floodplain resources has resulted in a reduction in both the amount and quality of habitat available for the San Bernardino kangaroo rat. The past habitat losses and potential future losses prompted the emergency listing of the San Bernardino kangaroo rat as an endangered species (U.S. Fish and Wildlife Service, 1998a). Robust populations of SBKR are documented approximately 1 mile upstream of the study area. According to recent surveys conducted in the vicinity of the Project, SBKR have recently (2010 and 2012) been located approximately 0.25 mile upstream of the SAR crossing.

Northwestern San Diego Pocket Mouse - The northwestern San Diego pocket mouse prefers habitat similar to that preferred by the SBKR. The northwestern San Diego pocket mouse occurs in open, sandy areas in the valleys and foothills of southwestern California. The range of this species extends from Orange County to San Diego County, and includes Riverside and San Bernardino counties. This mouse is a California Species of Special Concern (CSC) whose historical range has been reduced by urban development and agriculture. CSC designation of species is based on a series of publications prepared by the CDFG on declining species of mammals, birds, fishes, and amphibians and reptiles. The publications were intended to focus attention on declining wildlife in California, species that are not currently listed but may merit listing under the California Endangered Species Act (CESA). Some of the species identified in these documents have been subsequently listed, or are provided protection under provisions in the California Endangered Species Act (CEQA). Others have remained on the CSC list, and have not been elevated to a greater status of protection. The reasons are many, including a lack of understanding on the specific numbers of individuals and populations, the habitats occupied by the species, and the threats to those habitats.

Los Angeles Pocket Mouse -The Los Angeles (LA) pocket mouse is one of two pocket mice found in this area of San Bernardino County. Both the Los Angeles pocket mouse and the San Diego pocket mouse occupy similar habitats, but the San Diego pocket mouse has a wider range extending south into San Diego County. The habitat of the Los Angeles pocket mouse is described as being confined to lower elevation grasslands and coast sage scrub habitats, in areas with soils composed of fine sands (Williams, 1986). The present known distribution of this species extends from Rancho Cucamonga east to Morongo Valley and south to the San Diego County border. LA pocket mouse forages in open ground and underneath shrubs. Pocket mice in general dig burrows in loose soil, although this has not been completely documented for this subspecies. The LA pocket mouse is listed as a California Species of Special Concern by the California Department of Fish and Game (CDFG).

San Diego Desert Woodrat -The desert woodrat is a relatively wide-ranging species extending along the coast of California from south of San Francisco through to the border with Baja California. This species also occurs in the Central Valley and the deserts of southern California and extends along the desert side of the Sierra Nevada into southeastern Oregon. The coastal race of the desert woodrat, the San Diego desert

woodrat, prefers scrub habitats such as coastal sage scrub, chaparral and alluvial fan sage scrub. It is more common in areas with rock piles and coarse sandy to rocky soils throughout coastal southern California. The range of this species extends from just south of Sacramento and the San Francisco area to the border with Baja California. The coastal subspecies of the widespread *Neotoma lepida* is listed as a CSC; its historical range has been impacted by the conversion of scrub habitats into residential, commercial and industrial use.

## 4.2 SBKR Habitat Assessment

After visually assessing the entire alignment and researching background information relative to SBKR occurrences, Ms. Lawrey determined that the only location in the Project alignment supporting suitable habitat for SBKR occurs at the existing SAR rail road bridge crossing. The soils here are very friable and consist of Psamments and fluvents (young alluvial deposits with little or no soil formation) and Soboba Stony Loamy sand. The type and structure of the habitat here are also consistent with SBKR occupation. Current surveys have been positive for SBKR 0.25 mile upstream of the existing SAR rail road bridge crossing between Orange Show Road and Tippecanoe Avenue. The rest of the Project alignment did not display any habitat characteristics or diagnostic sign indicative of potential SBKR occupation, nor did the records indicate SBKR presence. Therefore, the SBKR analysis area became focused at the existing SAR rail road bridge crossing.

### 4.2.1 Observed Habitats

Riversidean Alluvial Fan Sage Scrub RAFSS - Expansive blocks of RAFSS habitat exist within the Santa Ana River. RAFSS is a rare and sensitive plant community that is adapted to the harsh conditions of flooding. It grows on sandy, rocky alluvium deposited by streams that experience infrequent episodes of flooding. The dominant habitat type found within the SBKR study area includes RAFSS (Holland community code 32720). RAFSS is a Mediterranean shrubland community that dominates washes, floodplains, and alluvial fans in southern California. Because alluvial fan sage scrub is characterized by its diversity, it can also be described as an intermediate between chaparral and sage scrub habitats, in that all three vegetation communities share similar floral components. However, the distinguishing factor is that alluvial fan sage scrub undergoes periodic scouring from frequent flooding events, creating three seral stages; pioneer, intermediate, and mature.

The SBKR study area contains disturbed intermediate RAFSS. This habitat generally occurs between the active flood channels and terraces of the Santa Ana River and is subjected to infrequent flooding events. Species composition onsite includes scalebroom (*Lepidospartum squamatum*), California buckwheat, brittlebush, matchweed (*Gutierrezia californica*), broom matchweed (*Gutierrezia sarothrae*), telegraph weed (*Heterotheca grandiflora*), coastal goldenbush (*Isocoma menziesii*), interior goldenbush (*Ericameria linearifolia*), hairy yerba santa (*Eriodictyon trichocalyx*), California sagebrush (*Artemisia californica*), Coastal prickly pear (*Opuntia littoralis*), valley cholla (*Opuntia parryi*), shrubby butterweed (*Senecio flaccidus*), and Our Lord's candle (*Yucca whipplei*). Soils are mainly gravelly, coarse alluvium with approximately 50 percent vegetative cover.

California Buckwheat Alluvial Fan Association - The California Buckwheat Alluvial Fan Association (CBAFA) described by Gordon and White (1994) is a type of RAFSS in which California buckwheat is dominant. It is another alluvial scrub found adjacent to major floodplains and is found in the SBKR survey area. Species present onsite typical of this community included California buckwheat as a dominant species, as well as brittlebush, California matchweed, deerweed, and occasional hairy yerba santa and scalebroom. Vegetative cover is moderate and soils are characterized as loose, coarse alluvia. In the SBKR study area, this community is primarily associated with previously disturbed areas up on the upper terraces adjacent to the bridge abutments.

Ruderal - Ruderal, non-native vegetation has successfully colonized the outskirts of the SBKR study area. Non-native cover is very high. Typical vegetation observed onsite consists of weedy non-native species such as wild oat (*Avena* sp.), shortpod mustard (*Hirschfeldia incana*), ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), tocalote (*Centaurea melitensis*), red-stemmed filaree (*Erodium cicutarium*), and horehound (*Marrubium vulgare*).

Riparian - In addition to the rich RAFSS habitat community found within the SBKR study area, patches of riparian habitat occur along the banks. This riparian habitat is in various seral stages and generally consists of tall, multilayered, open canopy riparian woodland. The characteristic vegetative species within this riparian habitat include; Fremont cottonwood (*Populus fremontii*), black willow (*Salix goodingii*), sandbar willow (*S. hindsiana*), and mule fat (*Baccharis salicifolia*). This riparian woodland has emerged with a complex canopy structure of varying layers of trees, shrubs, herbs and vines. The overstory within Mission Creek and at its confluence with the SAR averages over 35 ft in height.

The habitat within the study area is favorable for foraging, nesting, burrowing, and wildlife movement.

#### **4.2.2 Commonly Observed Plants and Wildlife**

Common native perennial floral species present in the SBKR study areas include chamise, California juniper, California buckwheat, deerweed, white sage, and California sagebrush. Common native annual species include wreath plant (*Stephanomeria virgata* ssp. *virgata*), slender buckwheat (*Eriogonum gracile*), California sun cup (*Camissonia bistorta*), California croton (*Croton californicus*), telegraph weed, and prickly cryptantha (*Cryptantha muricata*).

Common wildlife species seen and/or heard during the SBKR surveys include a number of local reptiles, birds, and mammals. Common reptiles encountered were the coastal western whiptail (*Cnemidophorus tigris*), western fence lizard (*Sceloporus occidentalis*), and side-blotch lizard (*Uta stansburiana*). Approximately 15 bird species were detected. Common birds included black phoebe (*Sayornis nigricans*), northern mockingbird (*Mimus polyglottos*), rock wren (*Salpinctes obsoletus*), and western kingbird (*Tyrannus verticalis*). Excluding the small mammals captured during trapping, three mammals species were seen including the California ground squirrel (*Spermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*), and coyote (*Canis latrans*).

### 4.3 SBKR Trapping Surveys

Based on the suitable site conditions at the existing SAR rail road bridge crossing and known locations of SBKR in the nearby vicinity, it was determined that trapping studies were warranted. No limitations or constraints were identified that could influence the survey results. Surveys were conducted during the appropriate season, in good weather conditions, by a qualified biologist who followed all pertinent protocols. Weather conditions were clear and cool with calm winds. Table 2 below shows the tabulated weather data as it relates to the surveys.

**Table 2. Survey dates, weather conditions, and moon phases**

Survey Dates	%Cloud Cover	Wind (BFT)	Overnight Low Temp (°F)	Precipitation	Moon Phase
05/18	50	2	57	None	Waxing cresant
05/19	50	2	58	None	Waxing cresant
05/20	20	2	57	None	New moon
05/21	10	1	60	None	Waning cresant
05/22	0	2	63	None	Waning cresant
05/23	0	1	60	None	Waning cresant

Sign of various small mammals were observed within the areas of the trap lines and five (5) native rodent species were trapped in the SBKR survey area. No animals were marked as part of this survey so determining unique individuals versus recaptured individuals was not possible. The term “trap night” is used to relay how many individuals, per species were caught over the 5-night session. Each trap is counted as a trap night, so with 100 traps surveyed over five nights there was a total of 500 trap nights in the survey area. There were 143 captures over the five night trapping period.

**Table 3. Species captured within the Phase 1 SBKR Survey Area**

Species	Trap Nights
Dulzura Kangaroo Rat ( <i>Dipodomys simulans</i> )	5
desert wood rat ( <i>Neotoma lepida</i> )	10
cactus mouse ( <i>Peromyscus eremicus</i> )	25
deer mouse ( <i>Peromyscus maniculatus</i> )	75
San Diego pocket mouse ( <i>Chaetodipus fallax fallax</i> )	28

(Phylogenetic listing per Jameson & Peters, California Mammals, 1988)

## 5 Conclusions

The trapping results show that SBKR do not currently occupy this area of the SAR. No SBKR were trapped over the course of the 5-night trapping survey. Given the absence of SBKR within the analysis area, there is no risk of taking individuals of this species in conjunction with implementing the proposed project. Although the project will not likely result in the loss of a federally listed species it may affect critical habitat. This project has a federal nexus, via permitting and funding, therefore project-related impacts to CH must be addressed through formal consultation with the USFWS.

## 5.1 San Bernardino Kangaroo Rat Critical Habitat

The USFWS is the principal Federal agency responsible for conserving, protecting and enhancing fish, wildlife and plants and their habitats by enforcing Federal wildlife laws, administering the ESA, managing migratory bird populations, restoring nationally significant fisheries, and conserving wildlife habitat. The USFWS listed the SBKR as endangered on September 24, 1998 (63 FR 51005) and designated CH for this species on April 23, 2002 (67 FR 19812). On January 10, 2011 the Court rejected the USFWS's 2008 revised SBKR CH designation (FR 73, No. 202). As a result of this decision, this project is subject to the SBKR CH that was designated by the USFWS in 2002 (67 FR 19812).

The 2002 CH designation for the SBKR encompasses 33,295 acres of land in Riverside and San Bernardino counties, California. CH is defined in section 3(5)(A)(i) of the ESA, in part, as *“areas occupied by the species at the time of listing and containing those physical and biological features (Primary Constituent Elements (PCEs)) that are essential to the conservation of the species, and that may require special management considerations or protection. General requirements include, but are not limited to: space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species”*.

The areas designated as CH for SBKR are identified in four separate units. The four units are within the geographical range of the SBKR and support the habitat the species requires for foraging, sheltering, reproduction, rearing of young, dispersal, and genetic exchange. This project falls within the Santa Ana River CH Unit (Unit 1), located in San Bernardino County. Unit 1 encompasses approximately 8,935 ac, and includes the SAR and portions of City, Plunge, and Mill Creeks. It is bounded by Seven Oaks Dam to the northeast. Although Seven Oaks Dam impedes sediment transport and reduces the magnitude, frequency, and extent of flood events, the system still retains partial fluvial dynamics because contributions from Mill Creek and other tributaries are not impeded by a dam or debris basin. This unit contains upland refugia and tributaries that are occupied by the species, active hydrological channels, floodplain terraces, and areas of habitat immediately adjacent to floodplain terraces. The functions and values of the SBKR CH within Unit 1 include: (1) Soil series consisting predominantly of sand, loamy sand, sandy loam, or loam; (2) Alluvial fan sage scrub and associated vegetation, such as coastal sage scrub and chamise chaparral, with a moderately open canopy; (3) River, creek, stream, and wash channels; alluvial fans; floodplains; floodplain benches and terraces; and historic braided channels that are subject to dynamic geomorphological and hydrological processes typical of fluvial systems within the historical range of the San Bernardino kangaroo rat; and (4) Upland areas proximal to floodplains with suitable habitat.

The Project area at the SAR is mapped within Unit 1 of designated SBKR CH. The CH within this portion of the Project area, specifically within the SAR between Waterman



Avenue and Orange Show Road, contains some PCEs for SBKR, is marginally suitable for SBKR and provides connectivity to large blocks of occupied habitat.

The new bridge will be up to 365 feet in length and will result in approximately 1.45 acres of impact including 0.84 acres of temporary disturbance and 0.61 acres of permanent disturbance to SAR channel bed/banks within SBKR CH. Temporary impacts to 0.84 acres and permanent impacts to 0.61 acres of the 8,935 acres of CH designated within Unit 1 will not result in an adverse modification of the CH designated in this unit. Furthermore, this Project will not change the hydrologic processes in any way that will contribute to further loss of PCEs elements identified for SBKR within the SAR.

## 5.2 Jurisdictional Waters & Regulatory Issues

The SAR is a jurisdictional river system characterized by active meander zones (within man-made levees) with quickly changing sedimentation and accretion patterns and a broad natural floodplain that frequently floods in the winter and spring. Construction of the Project may result in temporary and permanent alteration and fill of jurisdictional waters. Impacts to jurisdictional waters usually require regulatory approvals from the one or more of the following regulatory agencies: U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), and/or CDFG.

Based on the projected impacts gathered from current documentation, the Project may require a Clean Water Act (CWA) Section 404 permit, CWA Section 401 Certification, and CDFG Code Section 1602 Streambed Alteration Agreement. Further, critical habitat (CH) has also been designated over parts of the Project area for the federally listed SWWF and Santa Ana sucker as well as SBKR. Below is a discussion the regulations and corresponding regulatory agency for which this project may need to consult.

Clean Water Act (CWA)- The CWA is the principal federal law that governs pollution in the nation's lakes, rivers, and coastal waters. Originally enacted in 1972 as a series of amendments to the Federal Water Pollution Control Act of 1948, the Act was last amended in 1987. The overriding purpose of the CWA is to "restore and maintain the chemical, physical and biological integrity of the nation's waters." The statute employs a variety of regulatory and non-regulatory tools to eliminate the discharge of pollutants into the nation's waters and achieve water quality that is both "swimmable and fishable".

Under Section 404 of the CWA, the Corps has primary federal responsibility for administering regulations that concern the discharge of dredged or fill material into waters of the U.S. (including wetlands). Waters of the U.S. (WoUS) are defined as: "*All waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters*" (Section 404 of the CWA; 33 CFR 328).

The limit of the Corps jurisdiction for non-tidal waters (including non-tidal perennial and intermittent watercourses and tributaries to such watercourses) in the absence of

adjacent wetlands is defined by the ordinary high water mark. The ordinary high water mark (OHWM) is defined as: *“The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas”* (Section 404 of the CWA; 33 CFR 328). Wetlands are defined as: *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions”* (Section 404 of the CWA; 33 CFR 328).

Porter-Cologne Water Quality Control Act (Porter-Cologne)- Porter-Cologne is the principal State law that governs water protection efforts in California. Porter-Cologne establishes the State Water Resources Control Board (SWRCB) and each of the nine RWQCBs as the principal state agencies for coordinating and controlling water quality in California. The RWQCB typically regulates discharges of dredged or fill material into WoUS pursuant to Section 401 of the CWA, however, they also have regulatory authority over waste discharges into Waters of the State, which may be isolated, under Porter-Cologne. In the absence of a nexus with the Corps, the RWQCB requires the submittal of a Waste Discharge Requirement (WDR) application, which must include a copy of the project Storm Water Pollution Prevention Plan (SWPPP) and a copy of the project Water Quality Management Plan (WQMP), otherwise called a Standard Urban Stormwater Management Plan (SUSMP). The RWQCB’s role is to ensure that disturbances in the stream channel do not cause water quality degradation.

California Fish and Game Code (FGC) - Sections 1600 to 1616 of the California FGC require any person, state, or local government agency or public utility to notify the CDFG before beginning any activity that will substantially modify a river, stream, or lake. If it is determined that the activity could substantially adversely impact an existing fish and wildlife resource, then a Lake or Streambed Alteration Agreement is required.

Like the Corps and RWQCB, the CDFG also regulates discharges of dredged or fill material. The regulatory jurisdiction of CDFG is much broader however, than Corps or RWQCB jurisdictions. CDFG regulates **all** activities that substantially alter streams and lakes and their associated habitats. The CDFG, through provisions of the FGC Sections 1601-1603 is empowered to issue agreements for any substantial alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks. The CDFG typically extends the limits of their jurisdiction laterally beyond the channel banks for streams that support riparian vegetation. In these situations the outer edge of the riparian vegetation is generally used as the lateral extent of the stream and CDFG jurisdiction. CDFG regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by CDFG.

California Endangered Species Act (CESA) - The CDFG administers the California Endangered Species Act (CESA). The State of California considers an endangered species one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management, and a rare species is one present in such small numbers

throughout its range that it may become endangered if its present environment worsens. "Rare species" classification applies to California native plants. The State definition of "take" is narrow and specifically refers to the direct loss of a State-listed species.

Provisions within the FGC protect all native birds of prey and their nests (FGC §3503.5), and all non-game birds (other than those not listed as Fully Protected) that occur naturally in the State (§3800). The handful of species, such as the California condor, that are designated by the State as "fully protected" received this rare designation through special legislation. There is no mechanism allowed for CDFG to issue take authorization for a fully protected species. Species of Special Concern is an informal designation used by CDFG for some declining wildlife species that are not proposed for listing as threatened or endangered, such as the burrowing owl. This designation does not provide legal protection, but signifies that these species are recognized as sensitive by CDFG.

Federal Endangered Species Act (ESA) - Special status species are native species that have been afforded special legal protection because of concern for their continued existence. The USFWS enforces the provisions of the federal ESA. Section 9 of the ESA prohibits the "taking" of a listed species by anyone, including private individuals, and state and local agencies. The term "take" under federal law means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. "Take" can include adverse modification of habitats used by a threatened or endangered species during any portion of its life history. Threatened and endangered species on the federal list (50 CFR Sections 17.11 and 17.12) are protected from indirect and/or direct or take. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need for consultation under Section 7 or Section 10 of ESA. A Biological Opinion with incidental take provisions would be rendered. Pursuant to the requirements of the ESA, a federal agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present in the study area and whether the proposed project will have a potentially significant impact upon such species.

Under the ESA habitat loss may be considered an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species that is proposed for listing under ESA or to result in the destruction or adverse modification of CH proposed to be designated for such species. The term "critical habitat" for a threatened or endangered species refers to the following: specific areas within the geographical range of the species at the time it is listed that contain suitable habitat for the species, which may require special management considerations or protection; and specific areas outside the geographical range of the species at the time it is listed that contain suitable habitat for the species and is determined to be essential for the conservation of the species. Under Section 7 of the ESA, all federal agencies (including USFWS) are required to ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of a listed species or adversely modify their CH.

Pursuant to CEQA, project-related impacts to these species, or their habitats, would be considered significant and require mitigation.

Migratory Bird Treaty Act- Migratory birds are protected under the federal Migratory Bird

Treaty Act (MBTA) of 1918 (16 U.S.C 703-711). The MBTA provides protection for nesting birds that are both residents and migrants whether or not they are considered sensitive by resource agencies. The MBTA prohibits take of nearly all native birds. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The direct injury or death of a migratory bird, due to construction activities or other construction-related disturbance that causes nest abandonment, nestling abandonment or forced fledging would be considered take under federal law. The USFWS, in coordination with the CDFG administers the MBTA. CDFG's authoritative nexus to MBTA is provided in FGC Sections 3503.5 which protects all birds of prey and their nests and FGC Section 3800 which protects all non-game birds that occur naturally in the State.

## 6 References

- California Department of Fish and Game (CDFG), 2012. RareFind 3 Version 3.1.0, California Natural Diversity Data Base, California. Accessed on March 01, 2012.
- California Native Plant Society (CNPS), 2010. Inventory of Rare and Endangered Plants of California. Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, California. Available at: <http://www.cnps.org/inventory>. Accessed on March 01, 2012.
- California Department of Conservation, California Geological Survey website, [www.consrv.ca.gov](http://www.consrv.ca.gov).
- Cowardin, L. M., V. Carter, and E. T. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, U.S. Fish and Wildlife Service, Washington, District of Columbia.
- Environmental Laboratory, 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi. Franzreb, K. E. 1989. Ecology and conservation of the endangered Least Bell's Vireo. U.S. Fish and Wildlife Serv. Biol. Rep. 89(1).
- Hickman, J. C., ed. 1993. The Jepson Manual: Higher Plants of California. Univ. of Calif. Pr., Berkeley, CA.
- Holland, R. F. 1986. Preliminary descriptions of the Terrestrial Natural Communities of California. Calif. Dept. of Fish and Game, Sacramento, CA.
- McKernan, R.L. 1997. The status and known distribution of the San Bernardino Kangaroo rat (*Dipodomys merriami parvus*): field surveys conducted between 1987 and 1996. Unpublished report prepared for the Carlsbad Fish and Wildlife Office, Carlsbad, California.
- Natural Resources Conservation Service (NRCS), 2011. Web Soil Survey. Map Unit Descriptions. San Bernardino County Area, California. Available at: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>. Accessed on May 01, 2012.
- Munz, P.A. 1974. A flora of Southern California. University of California Press, Berkeley, California.
- U.S. Department of Agriculture. 1971. *Soil Survey of Western San Bernardino Area, California*. Soil Conservation Service, Washington, D.C.
- U.S. Fish and Wildlife Service 1998. Determination of Endangered Status for the San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*). 63 FR 3837.
- U.S. Fish and Wildlife Service 2002. Final Determination of Critical Habitat for the San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*); Final Rule. 67 FR 19812



## Figures





Figure 1. Aerial Overview of SBKR Survey Area

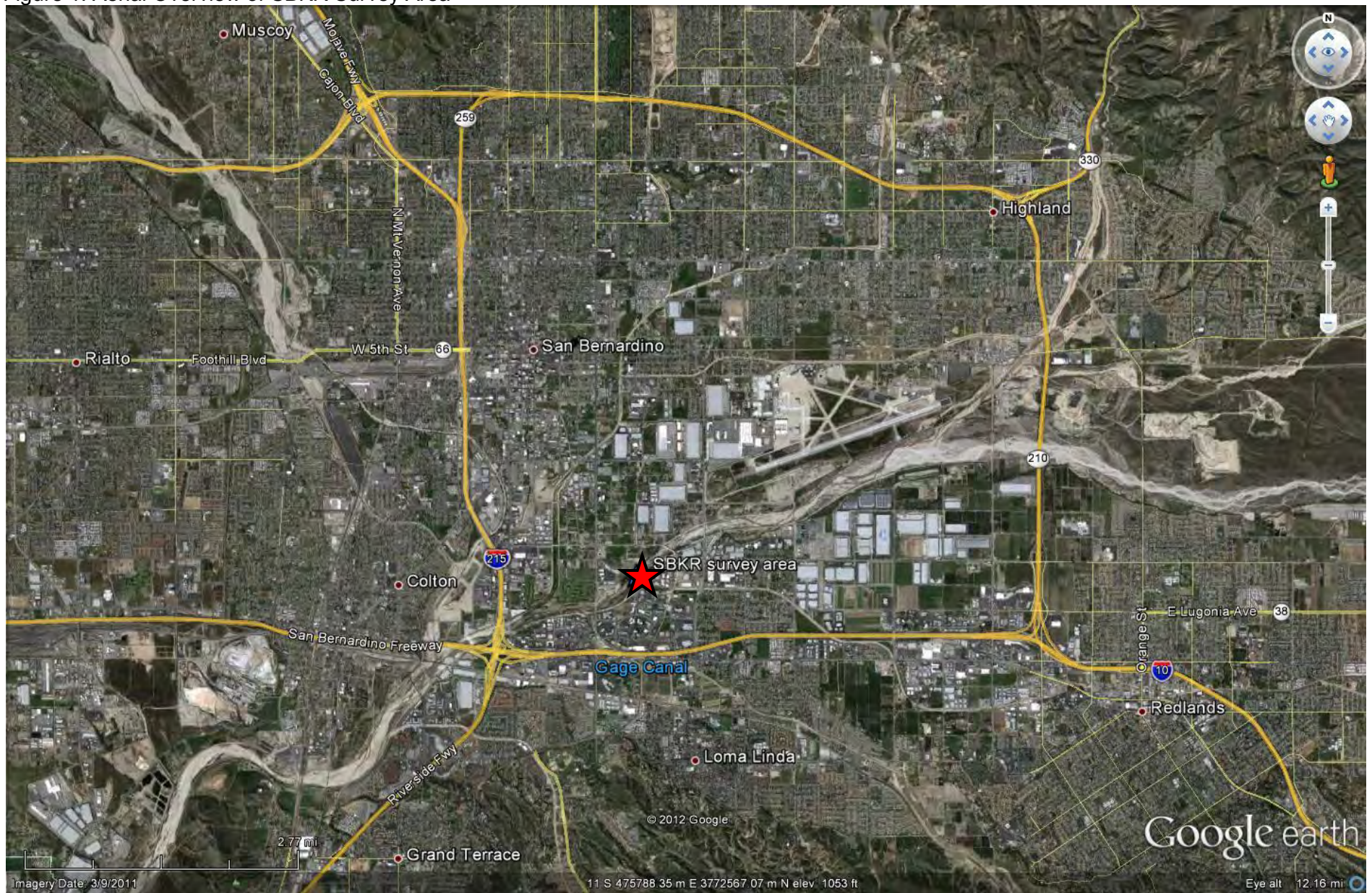




Figure 2. Aerial View of SBKR Survey Area with Critical Habitat Overlay





Figure 3. Aerial View of SBKR Survey Area Site Location





## **Photos of SBKR Survey Area**







Photo 1. Standing on west side of bridge looking north/northeast.



Photo 2. Standing on east side of bridge looking north/northwest.





Photo 3. Standing on north side of SAR as rail road approaches abutment looking southeast.



Photo 4. Standing at Mission Creek confluence with the SAR looking northeast at SAR bridge crossing.



# **APPENDIX L**

## **Jurisdictional Delineation Report**



Revised Final Jurisdictional  
Wetland Delineation Report  
Redlands Passenger Rail Project  
Redlands, San Bernardino County, California

**July 2013**

*Prepared for:*



**San Bernardino Associated Governments  
1170 W. 3rd Street, 2nd Floor  
San Bernardino, California 92410**

*Prepared by:*

**HDR Engineering, Inc.  
8690 Balboa Avenue, Suite 200  
San Diego, California 92123**

**ONE COMPANY | *Many Solutions*<sup>SM</sup>**





# Revised Final Jurisdictional Wetland Delineation Report Redlands Passenger Rail Project

July 2013

*Prepared for*

**San Bernardino Associated Governments**

1170 W. 3rd Street, 2nd Floor  
San Bernardino, CA 92410

*Prepared by*

**HDR Engineering, Inc.**

Attention: Ingrid Eich  
8690 Balboa Avenue, Suite 200  
San Diego, California 92123



---

Ingrid Eich  
Environmental Sciences Section Manager,  
Biological Sciences



## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION AND PROJECT DESCRIPTION .....</b>	<b>1</b>
1.1	PROJECT APPLICANT.....	1
1.2	PROJECT DESCRIPTION.....	1
	Track Improvements .....	2
	Structural Crossings and Bridges.....	2
	Roadway Grade Crossings.....	2
	Proposed Rail Platforms .....	2
	Train Layover Facility .....	3
	Utility Replacement and Relocation .....	3
	1.2.1 Alternatives and Design Options .....	5
	1.2.2 Definitions .....	5
1.3	PROJECT LOCATION .....	6
1.4	SOILS .....	6
1.5	HYDROLOGY .....	7
1.6	VEGETATION COMMUNITIES .....	7
<b>2.0</b>	<b>METHODS .....</b>	<b>11</b>
<b>3.0</b>	<b>REGULATORY SETTING .....</b>	<b>12</b>
3.1	U.S. ARMY CORPS OF ENGINEERS .....	12
	3.1.1 Waters of the U.S.....	12
	3.1.2 Wetlands .....	13
	3.1.3 Supreme Court Decisions .....	13
3.2	REGIONAL WATER QUALITY CONTROL BOARD .....	14
3.3	CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE .....	14
<b>4.0</b>	<b>RESULTS .....</b>	<b>15</b>
4.1	USACE WETLANDS AND WATERS .....	18
4.2	CDFW JURISDICTIONAL AREAS .....	19
<b>5.0</b>	<b>REFERENCES .....</b>	<b>20</b>

## APPENDICES

Appendix A	Figures
Appendix B	Site Photographs
Appendix C	Wetland Determination Data Forms
Appendix D	Topographic Cross Sections & OHWM
Appendix E	USACE Aquatic Resources Spreadsheet
Appendix F	Non-Jurisdictional Attribute Data

## Appendix A – Project Figures

Figure 1.	Regional Location Map .....	A-1
Figure 2a.	USGS Topographic Map .....	A-3
Figure 2b.	USGS Topographic Map .....	A-5
Figure 3.	Soils .....	A-7
Figure 4.	Vegetation Communities Overview .....	A-9
Figure 4a.	Vegetation Communities .....	A-11
Figure 4b.	Vegetation Communities .....	A-13
Figure 4c.	Vegetation Communities .....	A-15
Figure 4d.	Vegetation Communities .....	A-17
Figure 4e.	Vegetation Communities .....	A-19
Figure 4f.	Vegetation Communities .....	A-21
Figure 4g.	Vegetation Communities .....	A-23
Figure 4h.	Vegetation Communities .....	A-25
Figure 4i.	Vegetation Communities .....	A-27
Figure 4j.	Vegetation Communities .....	A-29
Figure 4k.	Vegetation Communities .....	A-31
Figure 4l.	Vegetation Communities .....	A-33
Figure 4m.	Vegetation Communities .....	A-35
Figure 4n.	Vegetation Communities .....	A-37
Figure 4o.	Vegetation Communities .....	A-39
Figure 4p.	Vegetation Communities .....	A-41
Figure 4q.	Vegetation Communities .....	A-43
Figure 4r.	Vegetation Communities .....	A-45
Figure 4s.	Vegetation Communities .....	A-47
Figure 4t.	Vegetation Communities .....	A-49
Figure 4u.	Vegetation Communities .....	A-51
Figure 5.	Wetland and Waters of the U.S. Overview .....	A-53
Figure 5a.	Wetland and Waters of the U.S. ....	A-55
Figure 5b.	Wetland and Waters of the U.S. ....	A-57
Figure 5c.	Wetland and Waters of the U.S. ....	A-59
Figure 5d.	Wetland and Waters of the U.S. ....	A-61
Figure 5e.	Wetland and Waters of the U.S. ....	A-63
Figure 5f.	Wetland and Waters of the U.S. ....	A-65
Figure 5g.	Wetland and Waters of the U.S. ....	A-67
Figure 5h.	Wetland and Waters of the U.S. ....	A-69
Figure 5i.	Wetland and Waters of the U.S. ....	A-71
Figure 5j.	Wetland and Waters of the U.S. ....	A-73
Figure 5k.	Wetland and Waters of the U.S. ....	A-75
Figure 5l.	Wetland and Waters of the U.S. ....	A-77
Figure 5m.	Wetland and Waters of the U.S. ....	A-79
Figure 5n.	Wetland and Waters of the U.S. ....	A-81
Figure 5o.	Wetland and Waters of the U.S. ....	A-83
Figure 5p.	Wetland and Waters of the U.S. ....	A-85
Figure 5q.	Wetland and Waters of the U.S. ....	A-87
Figure 5r.	Wetland and Waters of the U.S. ....	A-89
Figure 5s.	Wetland and Waters of the U.S. ....	A-91
Figure 5t.	Wetland and Waters of the U.S. ....	A-93



## TABLES

Table 1.	Existing Vegetation within the Project Survey Area .....	8
Table 2.	Non-Jurisdictional Ditches within the Survey Area .....	17
Table 3.	USACE Jurisdictional Areas within the Survey Area .....	19
Table 4.	CDFW Jurisdictional Areas within the Survey Area .....	19

**This page intentionally left blank.**

## 1.0 INTRODUCTION AND PROJECT DESCRIPTION

This report summarizes preliminary findings of the U.S. Army Corps of Engineers (USACE) and California Department of Fish and Wildlife (CDFW) jurisdiction for the Redlands Passenger Rail Project (RPRP or project) located in Redlands, San Bernardino County, California.<sup>1</sup> In 2012, HDR biologists examined the project site and a surrounding buffer area to determine the limits of: (1) USACE jurisdiction pursuant to Section 404 of the Clean Water Act (CWA); and (2) CDFW jurisdiction pursuant to Section 1600 of the California Fish and Game Code. Appendix A, Figure 1 depicts the project location. Appendix A, Figure 2 depicts the project study area overlaid on USGS San Bernardino South and Redlands quadrangles. Appendix A, Figure 3 depicts soils within the project study area. Appendix A – Figures 4a-4t, depict the vegetation communities and cover types that occur within the project study area. Appendix A – Figures 5a-5t depict the location and extent of Waters of the U.S. and Waters of the State.

Should project construction result in measurable impacts to USACE or CDFW jurisdiction, one or more of the following permitting documents may be required, depending on jurisdictional determinations (JD) made by the regulatory authorities identified by this study:

- A USACE Individual Permit pursuant to Section 404 of the federal CWA (1990, as amended), and/or qualification under a Nationwide Permit pursuant to Section 404 of the CWA;
- CWA Section 401 Certification from the state Regional Water Quality Control Board (RWQCB); and
- California Fish and Game Code Section 1602 Streambed alteration Agreement (CDFW).

### 1.1 PROJECT APPLICANT

The San Bernardino Associated Governments (SANBAG) is proposing the Project as further described under Section 1.2 to facilitate passenger rail service along the Redlands Corridor. SANBAG would be the project applicant for any regulatory permit approvals that may be required for the Project. The primary contact person at SANBAG for the Project is provided below.

Mitchell A. Alderman  
Director of Transit & Rail Programs  
San Bernardino Associated Governments  
1170 W. 3rd St, 2nd Floor  
San Bernardino, CA 92410  
(909) 884-8276

### 1.2 PROJECT DESCRIPTION

The Project would involve the implementation rail improvements along the Redlands Corridor to facilitate commuter rail service between the City of San Bernardino and the University of Redlands in the City of Redlands. Appendix A, Figure 1 depicts the project location. The five station stops proposed in conjunction with the RPRP would be located at E Street and Tippecanoe Avenue within the City of San Bernardino and New York Street, Orange Street, and University Street within the City of Redlands.

<sup>1</sup> This report presents our best effort at estimating the subject jurisdictional boundaries using the most up-to-date regulations and written policy and guidance from the regulatory agencies. Only the regulatory agencies can make a final determination of jurisdictional boundaries. If a final jurisdictional determination is required, HDR can assist in getting written confirmation of jurisdictional boundaries from the agencies.

Maintenance activities would be performed at a new layover facility proposed west of California Street and south of I-10 in the City of Redlands, just north of the Loma Linda city limits.

Construction of the project would occur within an existing railroad right-of-way (ROW) owned by the San Bernardino Associated Governments (SANBAG). SANBAG's ROW averages 50 to 100 feet in width with the exception of portions of downtown Redlands where the ROW measures less than 40 feet. Additional details regarding each of the components comprising the Project and associated operations are described under the following subheadings.

### **Track Improvements**

The Project would include the construction of track improvements to facilitate train movements along a single track through the rail corridor with an approximately 10,000-foot-long section of passing track or siding, from just west of Richardson Street to just east of California Street (Mile Post [MP] 5.5 to MP 7.4). The proposed track ballast and sub-grade along the 9-mile project corridor would be constructed to 50 feet in width, sufficient to support a parallel maintenance road. In downtown Redlands, this width would be reduced to less than 40 feet in recognition of the constrained ROW. This would require demolition and replacement of the existing track. These improvements would generally adhere to standards established by the BNSF and Southern California Regional Railroad Authority (SCRRA) for the rail, rail ties, ballast and subballast materials, grade crossing panels, placement of drainage structures and retaining walls, and horizontal and vertical clearances. The rail improvements would also include the construction of a new train signaling and communications system.

### **Structural Crossings and Bridges**

The Project would require the replacement or retrofitting of up to six structural crossings to facilitate the loading requirements of the passenger trains and track foundation. Five of the six structural crossings consist of existing bridge structures at Warm Creek (Historic), Twin Creek, Santa Ana River (Upper), the Mission Zanja Flood Control Channel, and Mill Creek Zanja.

### **Roadway Grade Crossings**

The Study Area traverses 32 existing roadway grade crossings including two I-10 underpasses. Roadways grade crossing not subject to closure would be re-designed in accordance with the latest Grade Crossing Design guidelines that require in certain cases raised medians, widened sidewalks, traffic striping, flashing lights, pedestrian gate arms where requested by the California Public Utilities Commission (CPUC), and swing gates.

### **Proposed Rail Platforms**

There are currently five (5) station stops proposed for the Project with new rail platforms proposed at four (4) locations. Two (2) station stops (E Street and Tippecanoe Avenue) would be located in the City of San Bernardino, while the other three (3) (New York Street, Downtown Redlands, and the University of Redlands) would be located in the City of Redlands. Shade structures (or canopies) would be provided to individually distinguish each rail platform and to compliment the contextual surroundings. Landscape planters would be used to separate platforms from open areas, adjacent uses, and walkways.

## Train Layover Facility

The Project would require the development of a new Train Layover Facility to include sufficient storage tracks for maintenance activities and operational activities including offices, training rooms, and a crew break room. The Train Layover Facility would be constructed on a long narrow site immediately south of I-10 and west of California Street and would contain up to seven spur tracks.

## Utility Replacement and Relocation

The Project would likely necessitate the relocation of existing subsurface and overhead crossing utilities (i.e., water, sewer, storm drain, power, gas, fiber optic, and telephone lines) in accordance with applicable utility accommodation design criteria and engineering standards. The exact method of improvement, if required, would be determined in coordination with the affected utility provider in conjunction with the Project's final design.

## Drainage

Several drainage facility improvements would be necessary to accommodate the track improvements, bridge replacements, platform improvements, and layover facility. It is anticipated that a majority of the storm drain facilities would be protected in place and would not need to be lowered to meet minimum depth requirements. However, it is likely that the majority of the storm drain casings within the rail ROW would need to be extended to span the entire width of the rail ROW. These improvements would be coordinated with the cities of San Bernardino and Redlands along with San Bernardino County Flood Control District (SBCFCD). In addition, longitudinal storm drain lines located within the rail corridor would need to be relocated further from the proposed track centerlines to comply with BNSF engineering standards.

***Mission Zanja Channel Improvements.*** Mission Zanja Flood Control Channel runs parallel to the rail line from the SAR to approximately 900 feet west of California Street for a distance of approximately 2.6 miles where it diverges from the Survey Area to the south. At approximately milepost 9.4 (Bridge 9.4), the creek rejoins the railroad further east, as Mill Creek Zanja, where it passes under the railroad just west of the I-10 overcrossing.

Mission Zanja Channel is characterized as an improved, trapezoidal earthen channel with some segments including wire revetment (USACE, 1994). To ensure the structural integrity of the track improvements along sections of Mission Zanja Channel, the Project may include bank stabilization improvements (e.g. armoring, slope keying, etc.) to the northern bank of the Mission Zanja Channel, from MP 3.5 to just east of MP 6, to ensure that the bank is able to support the additional loading requirements and withstand scour during high flow events. At this time, SANBAG is considering the use of an articulated concrete block (ACB) to support the armoring of the northern bank, which would allow for the growth of limited vegetation. This improvement would be coordinated and constructed with the SBCFCD, which owns and maintains the Mission Zanja Channel.

## Description of Passenger Rail Operations

The Project would incorporate the use of previously owned rail commuter rail vehicles and would start operations in early 2018. Local service would operate between the E Street and University of Redlands Rail Platforms with stops at each of the station stops along the route. Trains would operate every 30 minutes in the peak periods and every hour in the off-peak period. This would translate to 25 average

daily round trips along the alignment during weekdays. The Project does not propose any corresponding increase in freight service.

### **Maintenance**

Maintenance of the railroad ROW is currently the responsibility of BNSF, which is the current operator of the rail line. This includes routine maintenance of the track and track ties, grade crossings, and communication system. Vegetation management and weed abatement would also be required along the ROW. Each platform would also require routine landscaping and facility maintenance (e.g. replacement of lighting fixtures). Typical railroad maintenance and inspections would be conducted by a contractor hired by SANBAG throughout the operational phase of the Project in accordance with SCRRRA/Metrolink and BNSF standard practices.

### **Construction**

Construction of the proposed Project would begin in 2015 and take up to 36 months to complete. Construction would proceed generally from the west of E Street to the SAR and similarly from the SAR east to Cook Street. Construction scheduling and phasing would ultimately be at the discretion of SANBAG's contractor. In total, the anticipated construction disturbance area is estimated at 140.59 acres; however, actual physical disturbance would generally be limited to 10 acres or less on any given day. Of this total disturbance area, approximately 34.35 acres would be limited to temporary, construction-related impacts associated with the bridge structures and staging areas, while approximately 106.24 acres would be permanently impacted by the placement of one or more Project facilities.

A description of anticipated construction activities over the course of Project construction is provided as follows:

- Construction easement acquisition, clearing and grubbing, and removal of existing track;
- Relocate, extend, or encase utilities, as appropriate, to remove conflicts;
- Construct embankments, culvert extensions, and retaining walls for the proposed rail corridor, as necessary;
- Re-grade, install drainage, and construct bridge crossings, including as appropriate, new, standard height parapets on both sides of each bridge, construct in-fill walls, plug deck drains, construct new spread footings at each pile, and seal parapet joints;
- Construct new rail platforms at proposed rail platform locations and layover facility; and
- Construct new continuous welded rail track, roadway grade crossings, and install pedestrian access improvements and landscaping, where appropriate.

These activities would likely overlap at times. Staging areas for construction equipment and materials would be located primarily within the SANBAG ROW to the extent feasible. Other staging areas would be acquired, as necessary, by the construction contractor and, to the extent feasible, would include vacated roadway ROW. The location of the staging areas would depend on the rail segment, bridge, and platform location being constructed. In addition, a part of the proposed layover facility would be used as a centralized construction staging area for heavy equipment due to its centralized location along the rail corridor.

## 1.2.1 Alternatives and Design Options

In conjunction with the environmental review for RPRP, SANBAG is considering several alternatives and design options for the project. The alternatives and design options evaluated in this BTR are identified and summarized below:

- *Reduced Project Footprint Alternative.* This alternative would involve a reduced construction area (130.6 acres) to minimize impacts to sensitive habitats. These reductions in the construction area occur at Twin Creek, the SAR, and along the Mission Zanja Flood Control Channel. Additionally, this alternative would include an alternate bridge design for Bridge 3.4 to further minimize permanent impacts to the SAR as a result of the placement of the new bridge pier foundations. All other aspects of this alternative would be similar to the Preferred Project.
- *Design Option 1 (Layover at Waterman Avenue).* Design Option 1 would entail the placement of the proposed layover facility at an alternative location, just east of Waterman Avenue and north of the railroad corridor. The total construction area under the design option would slightly increase to 143.6 acres. All other aspects of this design option would be similar to the Preferred Project.
- *Design Options 2 (Use of Existing Layover Facilities).* Design Option 2 would entail the use of existing layover facilities to the west of the Survey Area in place of constructing a new layover facility. The total construction area under the design option would decrease to 130.0 acres. All other aspects of this design option would be similar to the Preferred Project.
- *Design Option 3 (Waterman Station).* Design Option 3 would entail the construction of a new station platform just east of Waterman Avenue and south of the railroad corridor in place of the Tippecanoe Avenue platform. The total construction area under the design option would slightly increase to 139.5 acres. All other aspects of this design option would be similar to the Preferred Project.

Additionally, a No Build Alternative is under consideration as part of the environmental review. Under this alternative, SANBAG would not construction the project, but would still be required to perform regularly scheduled maintenance of the existing track and corresponding improvements at grade crossings and bridges to facilitate continued freight service per SANBAG's obligations with BNSF. As a result, the some renovation and rehabilitation of the railroad corridor would still be required. However, these improvements would not be performed immediately, but rather incrementally over the next 10 years.

## 1.2.2 Definitions

The following definitions are used to describe the location of the various survey activities conducted during on-site fieldwork:

- **Project area** is defined as the limits of impacts associated with full build-out of the proposed project. The proposed project footprint is approximately 143 acres.
- **Survey area** is defined as the area within 200 feet on either side of the centerline of the proposed track alignment that was mapped and evaluated for potential direct and indirect impacts to biological resources. In limited areas, the survey area extends beyond the 200-foot offset to cover adjacent project facilities or potential infrastructure improvements. The survey area for the project is approximately 534 acres.



### 1.3 PROJECT LOCATION

The project is located within the limits of the Cities of San Bernardino and Redlands within the County of San Bernardino, California (Figure 1). The Survey area includes the easternmost nine miles of the 10-mile long Redlands Subdivision, which is now under SANBAG ownership. The Survey area starts just west of Mile Post (MP) 1, east of E Street within the City of San Bernardino and ends at MP 10.1 at the University of Redlands. The western endpoint of the Survey area roughly corresponds with 472625.405003 meters (m) East and 3773265.404 m North (WGS 84 UTM 11N). The eastern end of the Survey area corresponds with 485190.263559 m East and 3768624.11534 m North (WGS 84 UTM 11N).

Five major water crossings occur along within the Survey area. The western-most water crossing occurs at Warm Creek (Historic) at approximately MP 1.1. Further east, the railroad corridor crosses Twin Creek at approximately MP 2.2. At MP 3.4, the railroad corridor crosses the Santa Ana River. East of the Santa Ana River, the Survey area parallels the Mission Zanja Flood Control Channel for approximately 2.6 miles (MP 3.4 to MP 6.0). At MP 5.78, the Bryn Mawr Avenue crosses the Mission Zanja Flood Control Channel and intersections with the railroad corridor. Further east, the railroad corridor crosses the Mill Creek Zanja at MP 9.4.

### 1.4 SOILS

The Survey area is characterized as an alluvium-filled valley that formed over crystalline bedrock. The resulting surface generally ranges from 1,078 feet mean sea level (msl) in downtown San Bernardino to 1,474 feet msl in downtown Redlands. Soils within the Survey area boundary were mapped using the Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2003). The proposed project crosses eight different soil types (Appendix A, Figure 3), including:

- **Grangeville Fine Sandy Loam (Gr)** – This nearly level soil occurs on alluvial fans and alluvial plains and is used for pasture, truck crops, tomatoes, and flowers. It is a poorly drained, very deep fine sandy loam derived from granitic alluvium. The available water holding capacity is 6 to 8.5 inches. Runoff is very slow, and the erosion hazard is slight. The elevation ranges from 50 to 200 feet.
- **Tujunga Gravelly Loamy Sand (TvC), 0-9 percent slopes** – This soil occurs on alluvial fans and flood plains and is used mainly for grazing. Tujunga series consists of very deep, somewhat excessively drained soils formed in alluvium weathered mostly from granitic sources. The soils formed in sandy alluvium derived mostly from granitic sources. Runoff is very low or negligible and permeability is rapid. The elevation ranges from 5 to 4,300 feet.
- **Hanford Coarse Sandy Loam (HaC), 2-9 percent slopes** – This soil occurs on stream bottoms, floodplains and alluvial fans and is used for growing a wide range of fruits, vegetables, and general farm crops. Hanford series consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite. Runoff is well drained or low and permeability is moderately rapid. The elevation ranges from 150 to 3,500 feet.
- **Psamments and Fluvents, Frequently Flooded (Ps)** – Psamment soils are sandy in all layers and are among the most productive rangeland soils. Psamments are used mostly as rangeland, pasture, or wildlife habitat. Fluvents are more the more or less freely drained Entisols that have formed in recent water-deposited sediments on flood plains, fans, and deltas along rivers and small streams. Fluvents are used as rangeland, forest, pasture, or wildlife habitat and sometimes used as cropland. Most fluvents are frequently flooded with normal stratification of materials unless they are protected by dams or levees.



- ***Tujunga Loamy Sand (TvB), 0-5 percent slope*** – This soil occurs in somewhat excessively drained soils formed in alluvium and is used for growing citrus, grapes and other fruits but mainly used for grazing. Tujunga series consists of mostly weathered granitic sources. Runoff is very low to negligible with rapid permeability. The elevation ranges from 5-4,300 feet.
- ***Grangeville Fine Sandy Loam, Saline-Alkali (Gs)*** – This nearly level soil occurs on alluvial fans and alluvial plains and is used for pasture, truck crops, tomatoes, and flowers. It is a poorly drained, very deep fine sandy loam derived from granitic alluvium. The available water holding capacity is 6 to 8.5 inches. Formerly, most areas of Grangeville soils were occasionally flooded. Runoff is negligible, with moderate permeability in saline-sodic phases. The elevation ranges from 50 to 200 feet.
- ***Hanford Sandy Loam (HbA), 0-2 percent slopes*** – This soil occurs on stream bottoms, floodplains and alluvial fans and is used mostly for growing a wide range of fruits, vegetables, and general farm crops. Hanford series consists of mostly granite and other quartz bearing rocks. Runoff is well drained, negligible to low runoff, and with moderately rapid permeability. The elevation ranges from 150-3,500 feet.
- ***Ramona Sandy Loam (RmC), 2-9 percent slopes*** – This soil occurs on terraces and fans and used mostly for production of grain, irrigated citrus and deciduous fruits. Ramona series consists of mostly granitic and related rock sources. Runoff is slow to rapid and permeability is moderately slow. The elevation ranges from 250-3,500 feet.

## 1.5 HYDROLOGY

The Study Area is located within the Santa Ana River Watershed<sup>2</sup>, which is approximately 2,800 square miles in area, originates at San Geronimo Peak in San Bernardino County and drains southwesterly through Riverside and Orange Counties prior to emptying into the Pacific Ocean at Newport Beach. The Study Area is located with the Upper Santa Ana River Watershed, which is hydraulically disconnected from the lower watershed by San Prado Dam. The Study Area corresponds with the Santa Ana River Wash (HUC 18070203507), Mission Zanja (HUC 180702030506), and the Warm Creek (HUC 180702030508) sub-watershed units.

A total of five major offsite drainage features either crosses or is located longitudinally to the rail corridor. The crossings from west to east are known as Warm Creek (Historic) [Bridge 1.1], Twin Creek [Bridge 2.2], the SAR [Bridge 3.4], Bryn Mawr Avenue [Bridge 5.78], and Mill Creek Zanja [Bridge 9.4]. Bridges 5.78 and 9.4 cross the Mission Zanja Flood Control Channel (Mission Zanja Channel), which is a major drainage channel located adjacent and to the south of the eastern segment of the rail corridor.

## 1.6 VEGETATION COMMUNITIES

Vegetation types or plant communities are assemblages of plant species that usually coexist in the same area. The classification of vegetation communities is based upon the life form of the dominant species within that community and the associated flora. Vegetation was classified using the R.F. Holland system of natural communities as described in Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986). Nomenclature follows Hickman (1993) and Roberts, et al. (2004). The survey area supports 14 distinct vegetation communities (Appendix A – Figures 4a-4t; Table 1); however, the predominant land cover was identified as being urban/developed. The majority of the survey area is

<sup>2</sup> Note the SAR Watershed is located within the South Coast Hydrologic Region and corresponds to Hydrologic Unit Code (HUC) 18070203 accordingly to the U.S. Geological Survey.

made up of paved roadways, man-made structures, adjacent lands that are un-vegetated, and landscaped parcels.

## Disturbed Habitat (Holland Code 11300)

Disturbed habitat (DH) is primarily used to identify areas of severe impacts to natural communities to the extent where it is no longer sustaining or functioning naturally. These areas have been previously physically disturbed, but continue to retain a soil substrate. Disturbed areas consist of predominantly non-native weedy and ruderal exotic species. This is not a natural community and generally does not provide habitat for wildlife or sensitive species. Examples of disturbed habitat include areas that have been graded, cleared areas for fuel management, staging areas, off-road vehicle trails, and abandoned home sites.

Disturbed habitat in the survey corridor consists of abandoned staging areas, home sites, and parking areas, unpaved roads, and areas that have been graded, repeatedly cleared, and/or experienced repeated use that prevents natural revegetation (Appendix A, Figure 4a-4tAppendix B, Photograph 1). Characteristic species include invasive, non-native forbes, such as, prickly Russian-thistle/tumbleweed (*Salsola tragus*), London rocket (*Sisymbrium irio*), fennel (*Foeniculum vulgare*). In addition a limited amount of annual grasses typical of non-native grassland (42200) occur but do not dominate DH.

**Table 1. Existing Vegetation within the Project Survey Area**

Vegetation Communities	Survey Area Acreage
Disturbed Habitat	24.54
Disturbed Wetland	0.02
Eucalyptus Woodland	2.78
Flat-top Buckwheat Scrub (disturbed)	0.91
Mulefat Scrub	0.04
Non-Jurisdictional Ditch	1.31
Non-Native Grassland	61.90
Non-Vegetated Channel	29.22
Oak Woodland	9.62
Orchard and Vineyards	5.28
Southern Cottonwood Willow Riparian Forest	8.27
Southern Willow Scrub	0.64
Tamarisk Scrub	0.47
Urban/Developed	388.88
<b>Total</b>	<b>533.88</b>

## Disturbed Wetland (Holland Code 11200)

Disturbed Wetland (DW) is generally associated with areas of wetlands that have been disturbed in the past by clearing, grubbing, or mowing. The vegetation community has indicators of wetland species that

have been disturbed and non-native species such as castor bean (*Ricinus communis*), giant reed grass (*Arundo donax*), pampas grass (*Cortaderia selloana*), and other invasive species.

Within the survey area, a small area of DW occurs along the northern portion of the streambed in Twin Creek just west of the existing railroad bridge. Vegetation is sparse and consists of young arroyo willows (*Salix lasiolepis*), mulefat (*Baccharis salicifolia*), Typha (*Typha* sp.), and water speedwell (*Veronica anagallis-aquatica*). Within the DW a significant amount of trash and debris has accumulated such as mattresses, clothing, and shopping carts (Appendix A, Figure 4d; Appendix B, Photographs 2 and 3). There is evidence of vegetation maintenance (i.e., mowing) within the streambed. The DW does not connect upstream or downstream to wetland habitats.

### **Eucalyptus Woodland (Holland Code 11100)**

Eucalyptus woodland (EW) is characterized by landscaped areas around homes or roadways. The primary indicator in EW is eucalyptus (*Eucalyptus* spp.), which is a non-native tree species from Australia. The understory is sparse and mostly dominated by leaf litter and weedy species including brome grasses.

Within the survey area, EW occurs adjacent to the Santa Ana River with individuals and smaller stands of Eucalyptus occurring throughout the project alignment (Appendix A, Figures 4a-4t; Appendix B, Photograph 4).

### **Flat-top Buckwheat Scrub (Holland Code 37K00)**

Flat-top buckwheat scrub (FBS) consists of a monoculture of successional vegetation that formally supported coastal sage scrub and chaparral in areas that experience continued disturbances. In the survey corridor this community is disturbed, however, it is dominated by flat-top buckwheat (*Eriogonum fasciculatum*) and Wright's buckwheat (*Eriogonum wrightii*), with the presence of other species. Other species that were present include annual brome grasses, fescue (*Vulpia* spp.), filaree (*Erodium* spp.), deerweed (*Lotus scoparius*), white sage (*Salvia apiana*), and ranchers fiddleneck (*Amsinckia menziesii* var. *intermedia*).

Within the survey area, FBS occurs within a vacant lot located north of the railroad tracks adjacent to Warm Creek and east of D Street (Appendix A, Figures 4a-4t). This habitat is disturbed due to frequent mowing.

### **Mule fat Scrub (Holland Code 63310)**

Mule fat scrub (MFS) is generally characterized by tall, herbaceous riparian scrub dominated by mule fat. This vegetation community is frequently flooded an absence of floods in this community would likely succeed to cottonwood- or sycamore-dominated riparian forest or woodlands. Within the survey area this habitat occurs primarily within the Santa Ana River (Appendix A, Figures 4a-4t).

### **Non-native Grassland (Holland Code 42200)**

Non-native grasslands (NNG) are often associated with numerous species of wildflowers and a dense to sparse cover of annual grasses. Characteristic plant species of NNG include oat (*Avena* sp.), rip gut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), foxtail brome (*Bromus madritensis* ssp. *rubens*), four-spot clarkia (*Clarkia purpurea*), sierra shooting star (*Dodecatheon clevelandii*), and California melica (*Melica californica*).

NNG within the survey area is often disturbed and appears to have been previously irrigated and/or cultivated for agricultural purposes. Characteristics that comprise this attribute include the occurrence of previously open space between rows and these areas appear to be currently maintained (Appendix A, Figures 4a-4t).

### **Proposed Non-jurisdictional Ditch (No Holland Code)**

Several non-jurisdictional ditches occur within the survey area. These ditches occur entirely within upland areas and are generally associated with the railroad ROW. These features are typically unvegetated, or vegetated with weedy ruderal species, and do not provide significant wildlife habitat. These features serve to drain road runoff from the ROW and are often connected through a series of culverts running parallel with the ROW (Appendix A, Figures 4a-4t).

### **Non-Vegetated Channel (Holland Code 13200)**

Non-Vegetated Channel (NVC) consists primarily of engineered/leveed channels maintained by the San Bernardino Flood Control District or local municipality. The channels are either concrete-lined or consist of a fine to coarse sandy or sandy cobbly substrate and are sparsely vegetated or unvegetated. Leveed banks consist of either concrete, concrete-covered cobble, or rock rip rap. Within the survey area, FCC occurs primarily in Twin Creek, Warm Creek, the Santa Ana River, Zanja/Mission channel (Appendix A, Figures 4a-4t; Appendix B, Photographs 3 and 5).

### **Oak Woodland (Holland Code 71100)**

Oak woodland (OW) consists primarily of monotypic stands or various species of oak (*Quercus* sp.) with a poorly developed shrub layer, and well developed herbaceous layer generally dominated by grasses (*Bromes* spp.).

In the survey area this vegetation community consists of uniformly distributed scrub oak species with an occasional live oak (*Quercus* spp.) and a disturbed understory made up of non-native grasses that appear to be maintained (Appendix A, Figures 4a-4t). The area provides little habitat value due to the amount of disturbance and the surrounding land uses.

### **Orchard and Vineyards (Holland Code 18100)**

Orchard and Vineyards (OV) occurs as an active orange grove located north of the ROW between California and Nevada Streets (Appendix A, Figures 4a-4t).

### **Southern Cottonwood Willow Riparian Forest (Holland Code 61330)**

Tall, open, broadleafed winter-deciduous riparian forests dominated by Fremont cottonwood (*Populus fremontii*) and several willow species (*Salix* spp). This habitat occurs in sub-irrigated and frequently overflowed lands along rivers and streams. The dominant species require moist, bare mineral soil for germination and establishment. The understory is generally vegetated by herbaceous and viney species such as sedges (*Carex* sp.), grape (*Vitis* sp.), and introduced wetland species.

Within the survey area, Southern cottonwood willow riparian forest (SCWRF) occurs primarily within the western portion of Mission Zanja Channel and within the Santa Ana River (Appendix A, Figures 4a-4t).

### **Southern Willow Scrub (Holland Code 63320)**

Southern willow scrub (SWS) is usually made up of a dense thicket of various willow species (*Salix* spp.). This habitat occurs in loose, sandy alluvium near stream channels and is frequently flooded. The habitat is limited by the dense thicket of willows and frequent flooding which impacts the development of an understory.

Within the survey area, SWS occurs as small patches within the Santa Ana River and Twin Creek (Appendix A, Figures 4a-4t; Appendix B, Photographs 6-8).

### **Tamarisk Scrub (Holland Code 63810)**

Tamarisk scrub (TS) is made up of almost a monoculture of any of several tamarisk (*Tamarix* spp.) species. This vegetation community is often associated with major disturbances in areas where native vegetation is being supplemented by tamarisk.

Within the survey area Tamarisk Scrub occurs in primarily within the Santa Ana River and the Zanja/Mission Channel (Appendix A, Figures 4h).

### **Urban/Developed (Holland Code 12000)**

Urban/Developed (UD) land is comprised of areas of intensive use with much of the land constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Developed land is highly modified and characterized by permanent or semi-permanent structures, pavement, unvegetated areas and landscaped areas that require irrigation.

Within the survey corridor, developed areas are comprised of paved roadways, man-made structures, adjacent lands that are unvegetated, or landscapes with a variety of ornamental (typically non-native/exotic) plants (Appendix A, Figures 4a-4t; Appendix B, Photographs 9 and 10).

## **2.0 METHODS**

Jurisdictional delineation surveys were conducted for the proposed project in 2012. The survey area was delineated by HDR Biologists Sean Harris and Allegra Simmons on February 7-8, and 22-23, 2012. As previously described, the survey area extends 200 feet from the project centerline to capture jurisdictional features within and adjacent to the proposed project footprint. HDR biologists examined the project area to determine the limits of: (1) USACE jurisdiction pursuant to Section 404 of the Clean Water Act (CWA); and (2) California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 1600-1616 of the California Fish and Game Code. The site was evaluated in accordance with the 1987 USACE Wetland Delineation Manual (Environmental Laboratory, 1987), the 1992 Classification of Wetlands and Deep Water Habitats in the United States (Cowardin et al., 1992), the 2008 Interim Regional Supplement to the USACE Wetland Delineation Manual: Arid West Supplement (Arid West Supplement) (USACE, 2008a), the Regulatory Program CWA Guidance to Implement the U.S. Supreme Court Decision for the Rapanos and Carabell Cases (USACE 2008b), and the Field Guide to the Identification of the Ordinary High Water Mark (OHWM) on the Arid West Region of the United States (USACE, 2008c).

Suspected jurisdictional areas were field checked for the presence of an OHWM, definable channels and/or wetland vegetation, soils and hydrology. Where distinct boundaries between wetland vegetation communities, those that are dominated by obligate species, and upland vegetation communities, those that

are dominated by facultative upland or upland species, occurred, wetland limits were based upon vegetation mapping. Where the presence of wetlands was suggested by either hydrophytic vegetation or indicators of hydrology, a soil pit was established. A total of four soil pits were dug between February 22-23, 2012.

While in the field jurisdictional limits were recorded onto a color aerial photograph using visible landmarks or by walking polylines with a Trimble GPS unit. Upon completion of fieldwork, all data collected in the field were incorporated into a Geographic Information System (GIS) along with basemap data. The GIS was then used to quantify the extent of jurisdictional areas (Appendix A, Figures 5a-5t). Other data were recorded onto wetland data sheets (attached as Appendix C), available topographic data (attached as Appendix D), and USACE provided spreadsheets (attached as Appendix E). Upland non-jurisdictional features were further evaluated for hydrologic connectivity with the results provided in Appendix F.

## **3.0 REGULATORY SETTING**

### **3.1 U.S. ARMY CORPS OF ENGINEERS**

The USACE regulates the discharge of dredged or fill material into Waters of the U.S. pursuant to Section 404 of the CWA.

#### **3.1.1 Waters of the U.S.**

The term “Waters of the U.S.” is defined in USACE regulations at 33 CFR Part 328.3(a) as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters;
- Which or could be used by interstate or foreign travelers for recreation or other purposes; or
- From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- Which are used or could be used for industrial purpose by industries in interstate commerce;
- All impoundments of waters otherwise defined as Waters of the U.S. under the definition;
- Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;
- The territorial seas;
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section; and
- Waters of the U.S. do not include prior converted cropland.



The limits of USACE jurisdiction in non-tidal waters extends to the OHWM which is defined at 33 CFR 328.3(e) as:

“...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

### 3.1.2 Wetlands

The term “wetlands” (a subset of “Waters of the U.S.”) is defined at 33 CFR 328.3(b) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions.” In 1987, the Corps published a manual to guide its field personnel in determining jurisdictional wetland boundaries followed by the Arid West Supplement in 2008. The methodology set forth in the 1987 Wetland Delineation Manual and Arid West Supplement generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

1. The plant community must be determined to be hydrophytic based on: (1) the dominance test applied using the 50/20 rule<sup>3</sup>, or (2) where the vegetation fails the dominance test and wetland hydrology and hydric soils are present, vegetation is determined to be hydrophytic using the Prevalence Index test<sup>4</sup> based upon the indicator status (i.e., rated as facultative or wetter) in the National List of Plant Species that Occur in Wetlands<sup>5</sup>;
2. Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., redoximorphic features with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and
3. Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for a sufficient period to cause: (1) the formation of hydric soils; and (2) establishment of a hydrophytic plant community. A positive test for wetland hydrology is based on the presence of one primary or two secondary indicators.

### 3.1.3 Supreme Court Decisions

#### 3.1.3.1 Solid Waste Agency of North Cook County

On January 9, 2001, the Supreme Court of the United States issued a decision on *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.* with respect to whether the USACE could assert jurisdiction over isolated waters. The Solid Waste Agency of North Cook County (SWANCC) ruling stated that the USACE does not have jurisdiction over “non-navigable, isolated, intrastate” waters.

<sup>3</sup> If a particular species accounts for more than 50% of the total coverage of vegetation in the stratum, or for at least 20% of the total coverage in the stratum which the species was found, that species is defined as dominant.

<sup>4</sup> A Prevalence Index is calculated using wetland indicator status and relative abundance for each vascular plant species present.

<sup>5</sup> Reed, P.B., Jr. 1988. *National List of Plant Species that Occur in Wetlands*. U.S. Fish and Wildlife Service Biological Report 88(26.10).

### 3.1.3.2 *Rapanos/Carabell*

In the Supreme Court cases of *Rapanos v. United States* and *Carabell v. United States* (herein referred to as *Rapanos*), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the *Rapanos* decision, the USACE will assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not relatively permanent, and wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters. Analysis of potentially jurisdictional streams includes consideration of hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration and frequency of flow, proximity to traditional navigable waters, size of watershed, average annual rainfall, and average annual winter snow pack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

According to a USACE guidance document (USACE 2008a) the USACE generally will not assert jurisdiction over the following features: swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) and ditches (including roadside ditches) excavated wholly in and draining only uplands that generally do not carry a relatively permanent flow of water.

## 3.2 REGIONAL WATER QUALITY CONTROL BOARD

The RWQCB regulates activities pursuant to Section 401(a)(1) of the federal CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters.

## 3.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The State of California regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

“An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.”



CDFW jurisdiction includes ephemeral, intermittent and perennial watercourses and extends to the top of the bank of a stream or lake if unvegetated, or to the limit of the adjacent riparian habitat located contiguous to the watercourse if the stream or lake is vegetated.

### 4.0 RESULTS

A jurisdictional delineation of the survey area identified waters of the U.S. including wetlands and CDFW riparian and unvegetated streambed occurring onsite (Appendix A, Figures 5a-5t). Additionally, several non-jurisdiction upland ditches were identified within the survey area. The following is a discussion of survey results.

A total of five major offsite drainage features either cross or are located longitudinally to the rail corridor. The crossings from west to east are known as Warm Creek (Historic) (Bridge 1.1), Twin Creek (Bridge 2.2), Santa Ana River (Bridge 3.4), Bryn Mar Road (Bridge 5.75), and Mill Creek Zanja (Bridge 9.4). Mission Zanja Creek occurs adjacent to the eastern segment of the rail corridor. The following is a description of these features:

#### **Santa Ana River**

The main drainage feature within the Santa Ana Watershed is the Santa Ana River which is approximately 96 miles long, with its major upstream tributaries, including Bear Creek and Mill Creek. Other tributaries just downstream of the survey area include Lytle Creek originating in the San Gabriel Mountains and the San Jacinto River originating in the San Jacinto Mountains. The Santa Ana River bisects the survey area at Mile Post (MP) 3.4 (or Bridge 3.4), which corresponds with approximately River Mile 28.62 (or Reach 4).

A portion of the Santa Ana River occurs within the survey area between Waterman and Tippecanoe Streets (Appendix A, Figure 5g). The streambed consists primarily of unvegetated fine sandy substrate with some cobble and areas of raised vegetated bars/islands. The bars and islands are primarily dominated by willow (*Salix* sp.) scrub, cottonwood, and mulefat with some upland species occurring in the understory such as California sagebrush (*Artemisia californica*) and flat-top buckwheat (*Eriogonum fasciculatum*) (Appendix B, Photographs 6, 7, 8, and 11). Within the survey area the river is generally confined to the east and west by development or maintained (i.e., reinforced) floodplain. The northeastern and southeastern banks of the river are vegetated with cottonwood and willow scrub vegetation. The northwest portion of the river bank is leveed with concrete and metal mesh rip rap and the southwest bank supports a large stand of eucalyptus trees (Appendix B, Photograph 4). Off-road vehicles tracks are common within the unvegetated portion of the channel.

The portion of the Santa Ana River within the survey area supports an ephemeral flow regime. Pondered water was observed in the low points of the riverbed up to several weeks after winter and spring rains. However, during various biological surveys, the riverbed was generally observed to be dry. Within the survey area, the Santa Ana River supports waters of the U.S. and CDFW riparian and unvegetated streambed.

#### **Mission Zanja Flood Control Channel**

The Mission Zanja Flood Control Channel (or Mission Zanja Channel) parallels the rail corridor to the south from its confluence with the Santa Ana River to approximately 1,000 feet west of California Street; a total distance of approximately 2.6 miles. Owned and maintained by SBCFCD, the Zanja Channel

consists of an un-improved trapezoidal earthen channel with some segments supporting wire revetment (Appendix A, Figures 5g-5m; Appendix B, Photographs 6 and 12). The western terminus of the channel (outlet into Santa Ana River) supports dense native riparian vegetation and is heavily incised (15-20 feet). Trash and debris can be found throughout the channel.

The Mission Zanja Channel is culverted where it is crossed by paved roads through the cities of Loma Linda and Redlands. The channel has been artificial levied to decrease the risk of flooding to near by communities as a result to surrounding urban encroachment. Due to the surround urbanization there are many storm water drains that discharge into the channel.

Within the survey area, Mission Zanja Channel is ephemeral and supports waters of the U.S. and CDFW riparian and unvegetated streambed.

### **Twin Creek**

Twin Creek (also known as “East Twin Creek and Warm Creek Channel”) is a major channel that conveys flows from the Twin Creek Spreading Grounds in northern San Bernardino to its confluence with the Santa Ana River at the northeast quadrant of I-10/I-215 separation. Twin Creek is owned, operated, and maintained by the San Bernardino County Flood Control District (SBCFCD). According to USACE record drawings, Twin Creek consists of a 60-foot wide by 14-foot high rectangular concrete channel (RCC) through the survey area (Appendix A, 5c-5d; Appendix B, Photograph 3). Further downstream, the channel transitions to an unimproved (earthen) 202-foot wide base trapezoidal channel (with 2 to 1 side slopes) prior to discharging into Reach 5 of the Santa Ana River. The portion crossing the rail corridor was constructed in 1958.

Twin Creek primarily occurs as a large, unvegetated, concrete-lined channel, with vertically incised banks, and flows northeast to southwest through the survey area. The southern portion of the creek occurring in the survey area transitions to a sandy substrate with steeply sloped concrete banks. The sandy streambed supports sparse wetland vegetation, primarily low herbaceous plants and early successional shrub (mulefat) and sapling tree species (*Salix* spp., cottonwood). Within the survey area, Twin Creek is ephemeral and supports waters of the U.S. including wetlands and CDFW riparian and unvegetated streambed.

### **Warm Creek (Historic)**

Warm Creek (Historic) extends from north of the City of Highland downstream to its confluence with the Santa Ana River at the southwest quadrant of the I-10/I-215 separation (Appendix A, Figure 5a; Appendix B, Photograph 5). The East Twin and Warm Creek improvements constructed by the USACE in 1961 diverted most of the original flows to the SAR at a point 1.4 miles upstream of its original confluence, resulting in a rerouting of the portion of Warm Creek from about 5th Street south to Central Avenue. The Warm Creek Bypass Channel today connects the Twin Creek Channel to the downstream Warm Creek Channel. Consequently, the left over portion of Warm Creek no longer serves as a regional flood control facility but only conveys tributary local drainage (about 18 square miles) from the City of San Bernardino (HDR 2012a); hence, this remaining portion of the channel is referred to as Warm Creek (Historic) throughout the delineation report. Currently, the City of San Bernardino owns, operates, and maintains Warm Creek (Historic).

Within the survey area, Warm Creek primarily occurs as a narrow, un-vegetated, concrete-lined channel, with vertically incised banks, and flows north to south through the survey area. Warm Creek supports waters of the U.S. and CDFW unvegetated streambed.

## Mill Creek Zanja

Mill Creek Zanja occurs within the survey area at MP 9.5 (Appendix A, Figure 5r-5s; Appendix B, Photographs 13 and 14). The ephemeral creek was originally built by Native Americans as a ditch for water supply in 1819. As the area developed, the use of the Mill Creek transformed from water supply to a flood control and drainage channel. The Mill Creek Zanja, from 9th Street to Mill Creek, is designated as a State and Federal Historic Structure. SBCFCD owns the portion of the Mill Creek upstream and downstream of the Study Area. Mill Creek is covered with grouted rip rap as it conveys flow under I-10 (east crossing). The creek supports sparse non-native vegetation, sandy substrate, riprap banks, and substantial urban trash and debris.

Within the survey area, Mill Creek Zanja is ephemeral and supports waters of the U.S. and CDFW riparian and unvegetated streambed.

## Proposed Non-Jurisdictional Features

Throughout the survey area, storm water from adjacent urban areas is channeled into the railroad ROW and transported through a series of ditches. Examples of these features are provided in Appendix A, Figures 5a-5t and Appendix B, Photographs 9 and 10. These features occur entirely within upland areas, exhibit indistinct or intermittent OHWM and do not support riparian vegetation. Non-jurisdictional ditches within the Survey area are presented in Table 2. Additional details on these features are provided in Appendix E and F.

**Table 2. Non-Jurisdictional Ditches within the Survey Area**

Ditch ID	Existing Acreage within the Survey Area*
NJD A1	0.05
NJD A2	0.01
NJD A3	0.01
NJD B	0.25
NJD C	0.55
NJD D	0.01
NJD E	0.05
NJD F	0.01
NJD G1	0.11
NJD G2	0.01
NJD H1	<0.01
NJD H2	<0.01
NJD I1	0.01
NJD I2	0.17
NJD I3	0.02
NJD I4	0.05
NJD J1	0.05
NJD J2	0.02
NJD A1	0.05

\* Acreages rounded to the nearest hundredth acre.

### 4.1 USACE WETLANDS AND WATERS

As discussed in Section 2.0, Methods, suspected jurisdictional areas were field checked for the presence of an OHWM, definable channels and/or wetland vegetation, soils and hydrology. Four soil pits were conducted within the survey area. The following is a summary of the results; soil data sheets can be found in the attached delineation report (Appendix C).

#### Soil Pit 1

Soil Pit 1 (SP1) was located in a depressional area located north of the railroad tracks (Appendix A, Figures 5h; Appendix B, Photographs 15 and 16). The area is supported by stormwater runoff from the ROW and is located adjacent to the Zanja Channel. This area exhibited a predominance of hydrophytes including: arroyo willow (FACW), Fremont cottonwood (FAC), mulefat (FAC), and desert wild grape (*Vitis girdiana*; FAC). SP1 soils supported a loam matrix of very dark brown (10YR 3/2) and exhibited redoximorphic concentrations of strong brown (7.5YR 5/6) within 25 percent of the soil matrix. Hydric soils were identified as redox depression (F8). Hydrologic indicators at SP1 included water-stained leaves and biotic crust. SP1 meets the criteria for wetlands.

#### Soil Pit 2

Soil Pit 2 (SP2) was located in a depressional area located north of SP1 and the railroad tracks Appendix A, Figure 5h; Appendix B, Photograph 17). The area is supported by stormwater runoff from adjacent development and is blocked from connecting with the Zanja Channel by manufactured earthen berms (Appendix B, Photograph 18). The area supports moderately dense cover of 50 percent tamarisk (*Tamarisk* sp.; FAC) and 15 percent Johnson grass (*Sorghum halipense*; FACU). Using both the hydrophytic dominance test and prevalence index worksheets, SP2 does not meet USACE hydrophytic vegetation criteria SP2 supported a silty clay loam dusky red (2.5YR 3/2) matrix at 0-2 inches and a silty clay loam olive (5Y 4/3) matrix at 2-15 inches. Soils did not exhibit redoximorphic features. Hydric soils were identified as depleted matrix (F3). Hydrologic indicators at SP2 included surface soil cracks and inundation on aerial imagery. SP2 does not meet the criteria for wetlands.

#### Soil Pit 3

Soil Pit 3 (SP3) was located on the northern side of the Twin Creek streambed (Appendix A, Figure 5d; Appendix B, Photograph 2). Hydrophytic vegetation is dominant at SP1 and includes sparse coverage of mulefat (FAC) and Typha (*Typha* sp.; OBL). The area occurs at the transition from concrete-lined channel bottom to sandy substrate. This area is highly disturbed with a significant amount of urban trash and debris (Appendix B, Photograph 3). SP3 soils were inundated and had a hydrogen sulfide smell when agitated. Hydric soils were identified as redox hydrogen sulfide (A4). Hydrologic indicators at SP3 included surface water, saturation, water-stained leaves, and muck surface. SP3 meets the criteria for wetlands.

#### Soil Pit 4

Soil Pit 4 (SP4) was located on the southern side of the Twin Creek streambed (Appendix A, Figure 5d; Appendix B, Photograph 3). Hydrophytic vegetation is dominant at SP1 and includes: *Salix* sp. (FACW) and mulefat (FAC). Similar to SP3 area, SP4 occurs at the transition from concrete-lined channel bottom to sandy substrate and supports urban trash and debris (Appendix B, Photograph 3). SP4 soils were inundated and had a hydrogen sulfide smell when agitated. Hydric soils were identified as redox

hydrogen sulfide (A4). Hydrologic indicators at SP4 included saturation, water marks, water-stained leaves, inundation on aerial imagery, and muck surface. SP4 meets the criteria for wetlands.

In summary, the survey area primarily supports waters of the U.S. including several small areas of USACE wetlands (Appendix A, Figures 5a–5t). USACE jurisdictional areas mapped within the survey area are summarized in Table 2 below.

**Table 3. USACE Jurisdictional Areas within the Survey Area**

<b>Jurisdiction</b>	<b>Existing Acreage within the Survey Area*</b>
USACE Waters of the US	16.7
USACE Wetlands	0.05
<b>Total</b>	<b>16.75</b>
Proposed Non-Jurisdictional Ditch**	1.39

\* Acreages rounded to the nearest hundredth acre.

\*\* Acreages in Table 2 may not add up exactly due to rounding

## 4.2 CDFW JURISDICTIONAL AREAS

All USACE jurisdictional drainages within the survey area are considered jurisdictional by the CDFW. CDFW jurisdiction is similar to that of USACE jurisdiction, but also extends to the top of the bank and encompasses riparian vegetation when present (Appendix A, Figures 5a–5t). CDFW jurisdictional areas occurring within the survey area are summarized in Table 3.

**Table 4. CDFW Jurisdictional Areas within the Survey Area**

<b>Jurisdiction</b>	<b>Existing Acreage within the Survey Area*</b>
CDFW Riparian	8.77
CDFW Unvegetated Streambed	29.84
<b>Total</b>	<b>38.61</b>
Proposed Non-jurisdictional Ditch**	1.39

\* Acreages rounded to the nearest hundredth acre.

\*\* Acreages in Table 2 may not add up exactly due to rounding.

## 5.0 REFERENCES

Calwater Version 2.2.1 2012. <http://cain.ice.ucdavis.edu/calwater/>. Viewed July 2012.

Cowardin et al, 1992. Classification of Wetlands and Deep Water Habitats in the United States. U. S. Fish and Wildlife Service, FWS/PBS-79/31, L. Cowardin, V. Carter, F. Golet, and E LaRoe. December 1979, Reprinted 1992

Environmental Laboratory. 1987. U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

HDR. 2012a. Redlands Passenger Rail Project Draft Outline – Preliminary Hydrology and Hydraulics (H&H Report).

Hickman, J. C., ed. 1993. The Jepson Manual, Higher Plants of California. University of California Press, Berkeley. 1400 pp.

Holland, R.F. 1996. Preliminary descriptions of the terrestrial natural communities of California. State of California, Nongame-Heritage Program. 156p (amended).

U.S. Army Corps of Engineers (USACE). 2008a. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center. <http://www.usace.army.mil/CECW/Documents/cecwo/reg/trel08-28.pdf>. Viewed June 2012.

\_\_\_\_\_. 2008b. Regulatory Program CWA Guidance to Implement the U.S. Supreme Court Decision for the *Rapanos* and *Carabell* Cases. [http://www.usace.army.mil/CECW/Documents/cecwo/reg/cwa\\_guide/cwa\\_juris\\_2dec08.pdf](http://www.usace.army.mil/CECW/Documents/cecwo/reg/cwa_guide/cwa_juris_2dec08.pdf). Viewed July 8, 2011.

\_\_\_\_\_. 2008c. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. August. Viewed June 2012. <http://www.crrel.usace.army.mil/library/technicalreports/ERDC-CRREL-TR-08-12.pdf>

\_\_\_\_\_. 2001. Corps Memorandum relating to Supreme Court ruling concerning CWA jurisdiction over isolated waters.

U.S. Army Corps of Engineers and Environmental Protection Agency. 2001. Guidance for Corps and EPA Field Offices Regarding Clean Water Act Section 404 Jurisdiction Over Isolated Waters in Light of United States v. James J. Wilson United.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2003. Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils. Version 5.01.

U.S. Department of Agriculture, Soil Conservation Service. 1991. Hydric Soils of the United States, 3rd Edition, Miscellaneous Publication Number 1491. National Technical Committee for Hydric Soils.

U. S. Supreme Court. 2001. Case 2001. Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (referred to as SWANCC).

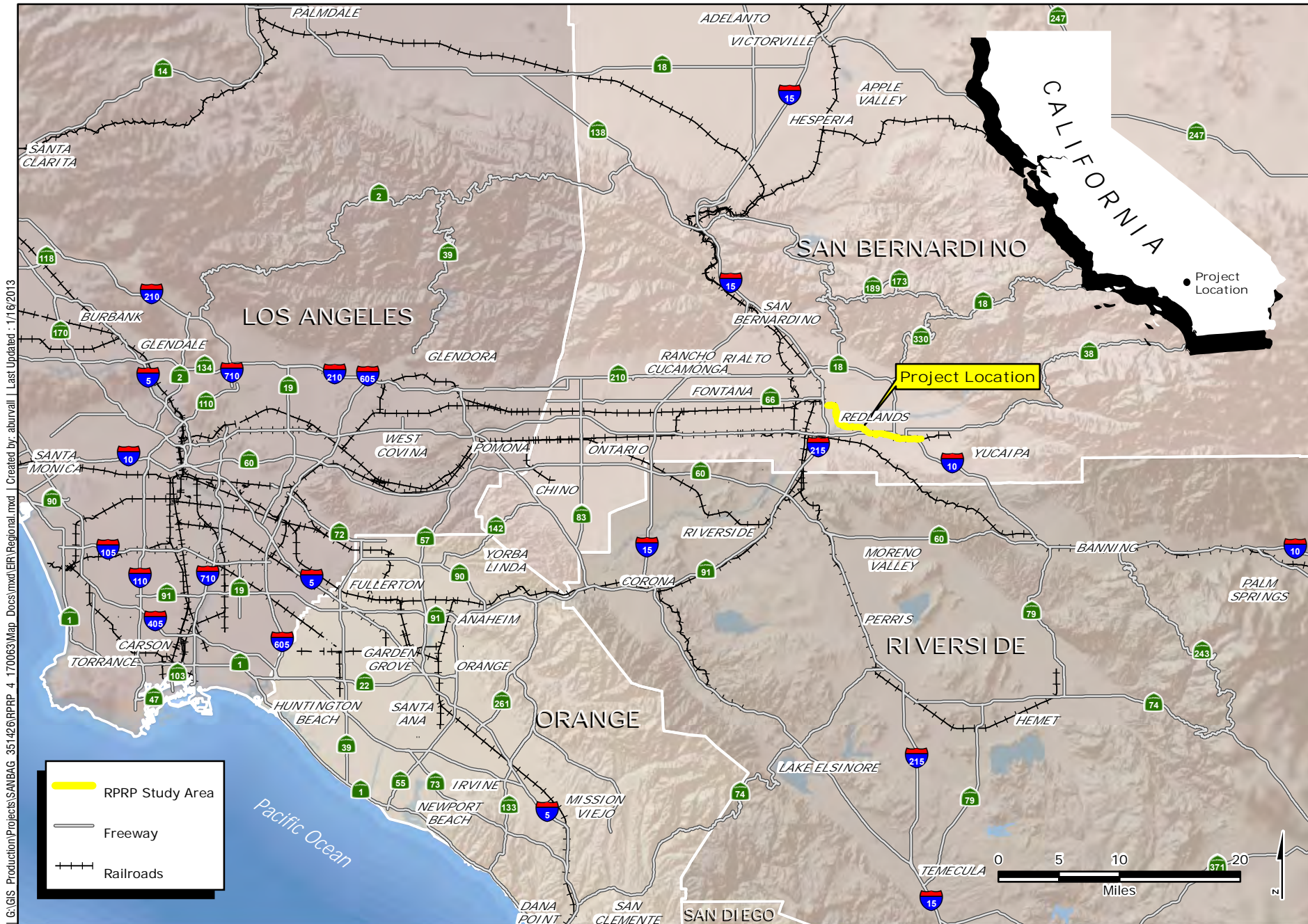
**This page intentionally left blank.**



## **APPENDIX A**

### **Figures**

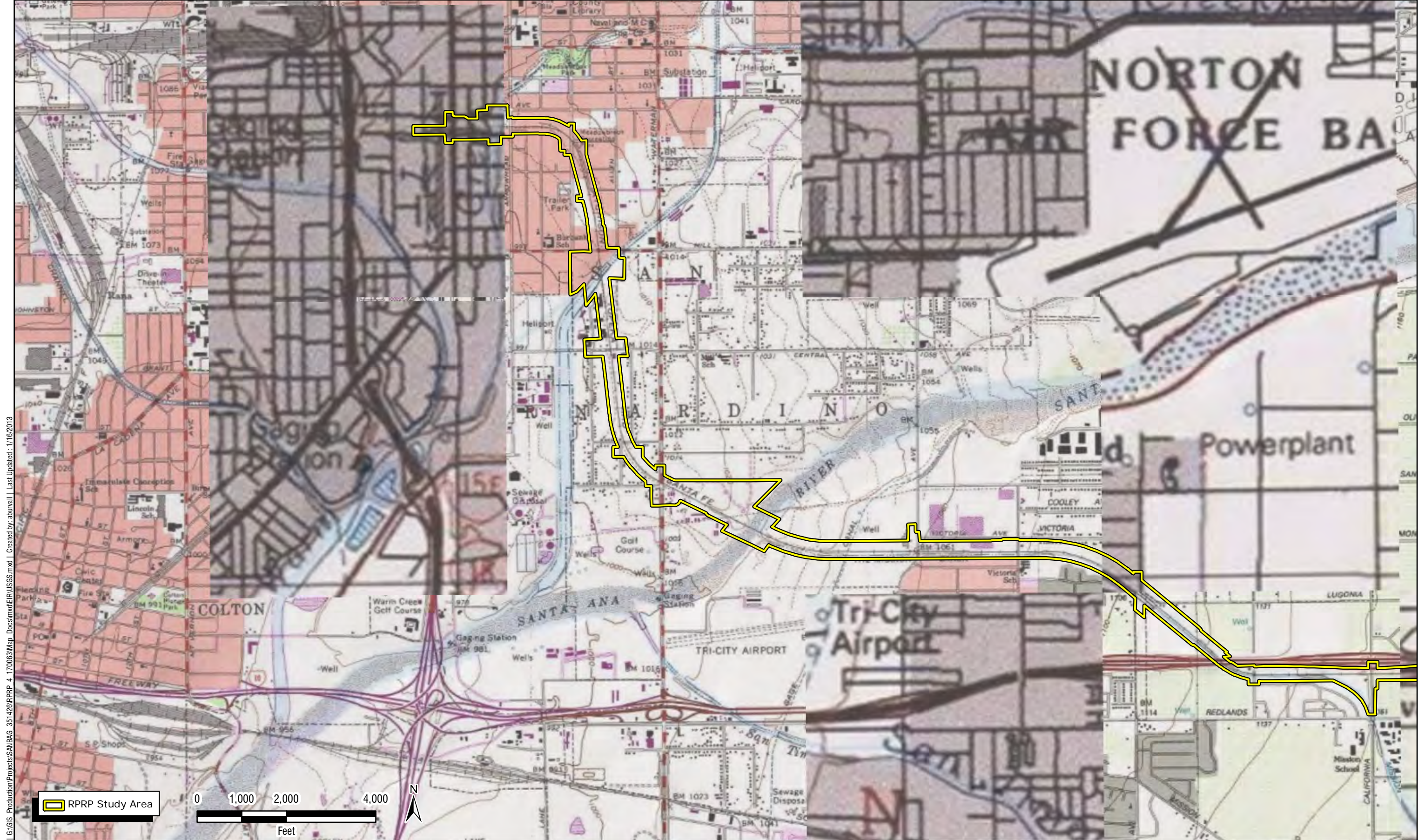




I:\GIS Production\Projects\SANBAG\_351426\RPRP\_4\_170063\Map\_Docs\mxd\ER\_Regional.mxd | Created by: aburvall | Last Updated: 1/16/2013





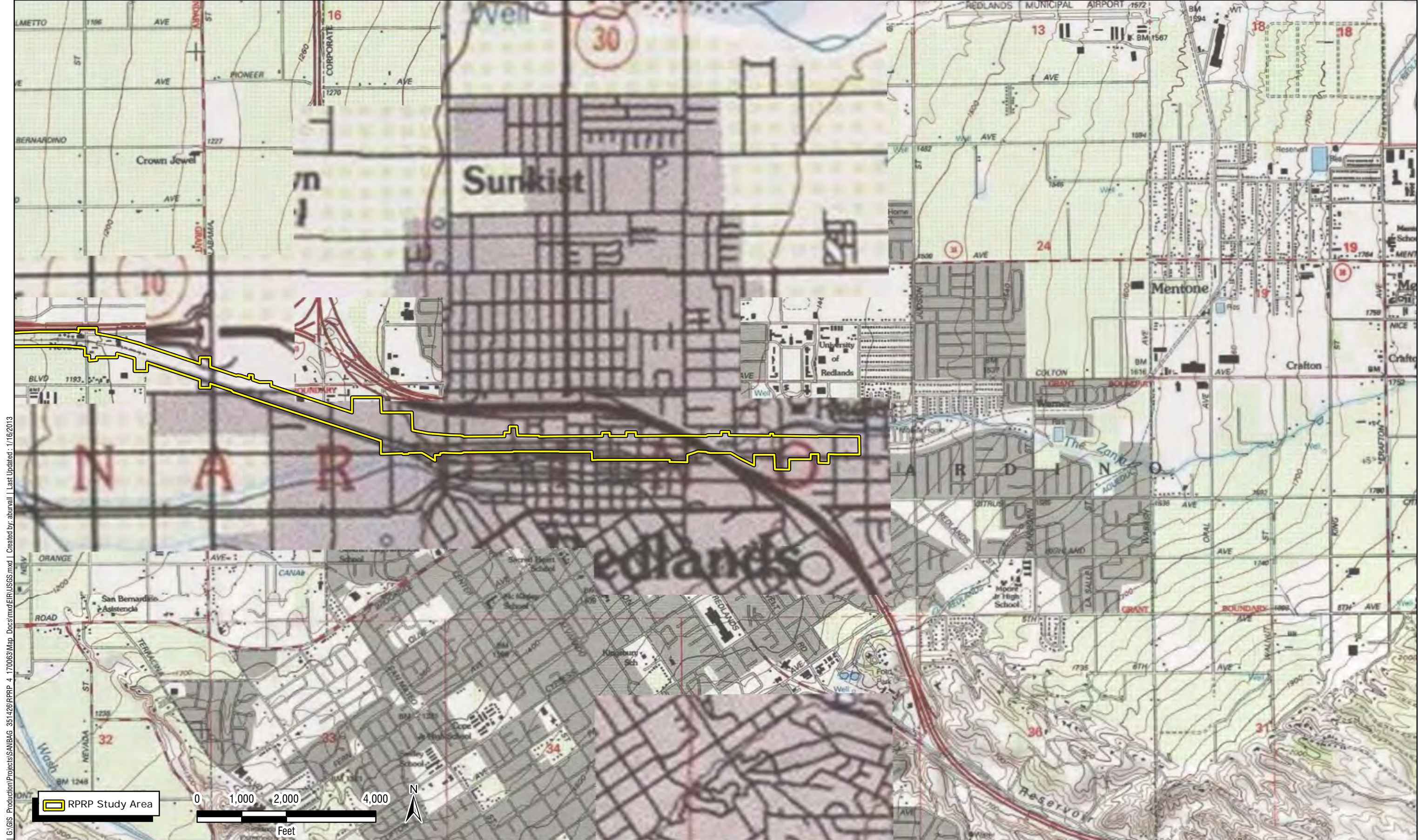


G:\GIS Production\Projects\SANBAG 351426\RPRP 4 170063\Map Docs\mxd\ER\USGS.mxd | Created by: abunvell | Last Updated: 1/16/2013







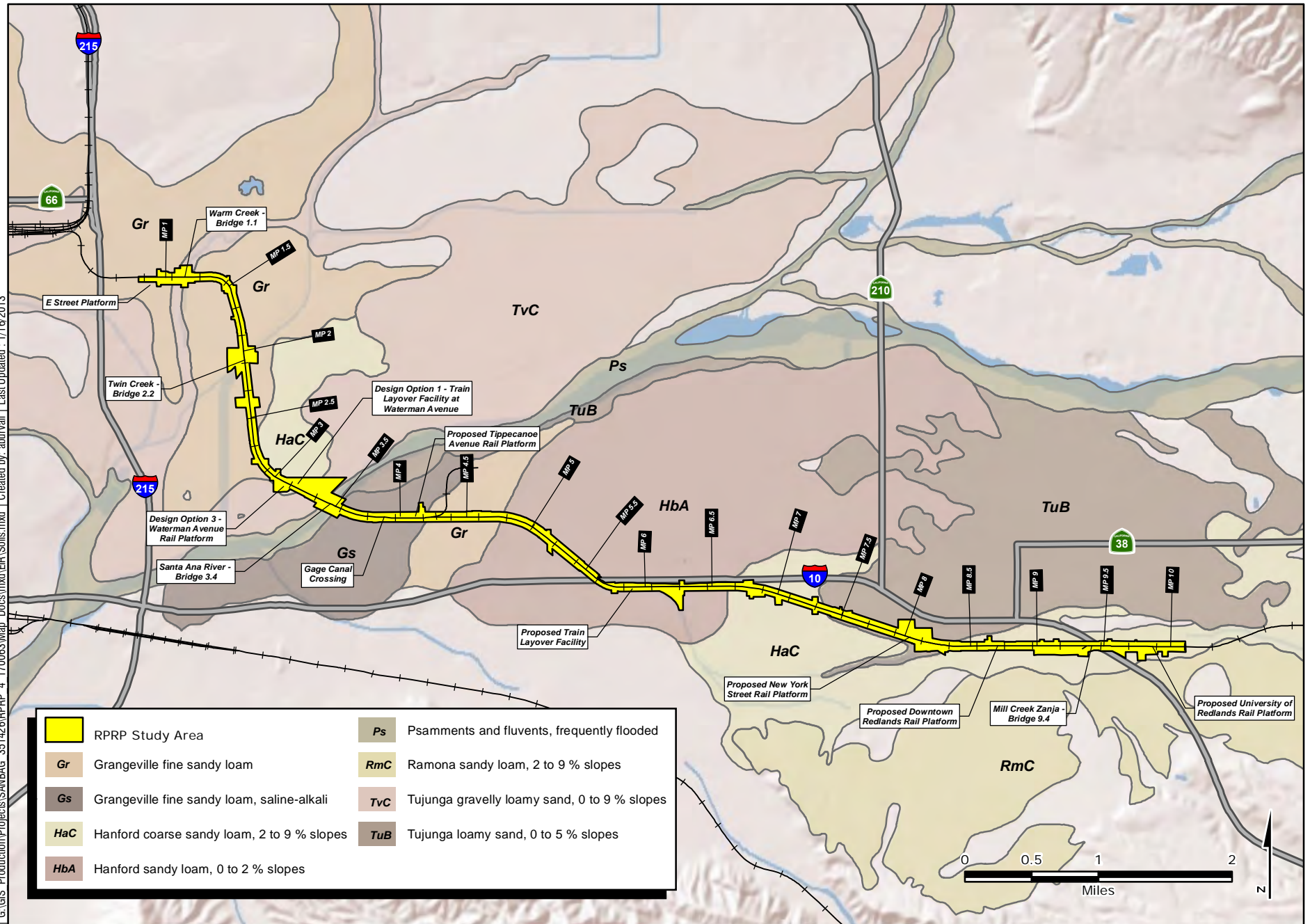


G:\GIS Production\Projects\SANBAG\_351426\RPRP\_4\_170063\Map Docs\mxd\ERUSGS.mxd | Created by: aburwell | Last Updated: 1/16/2013



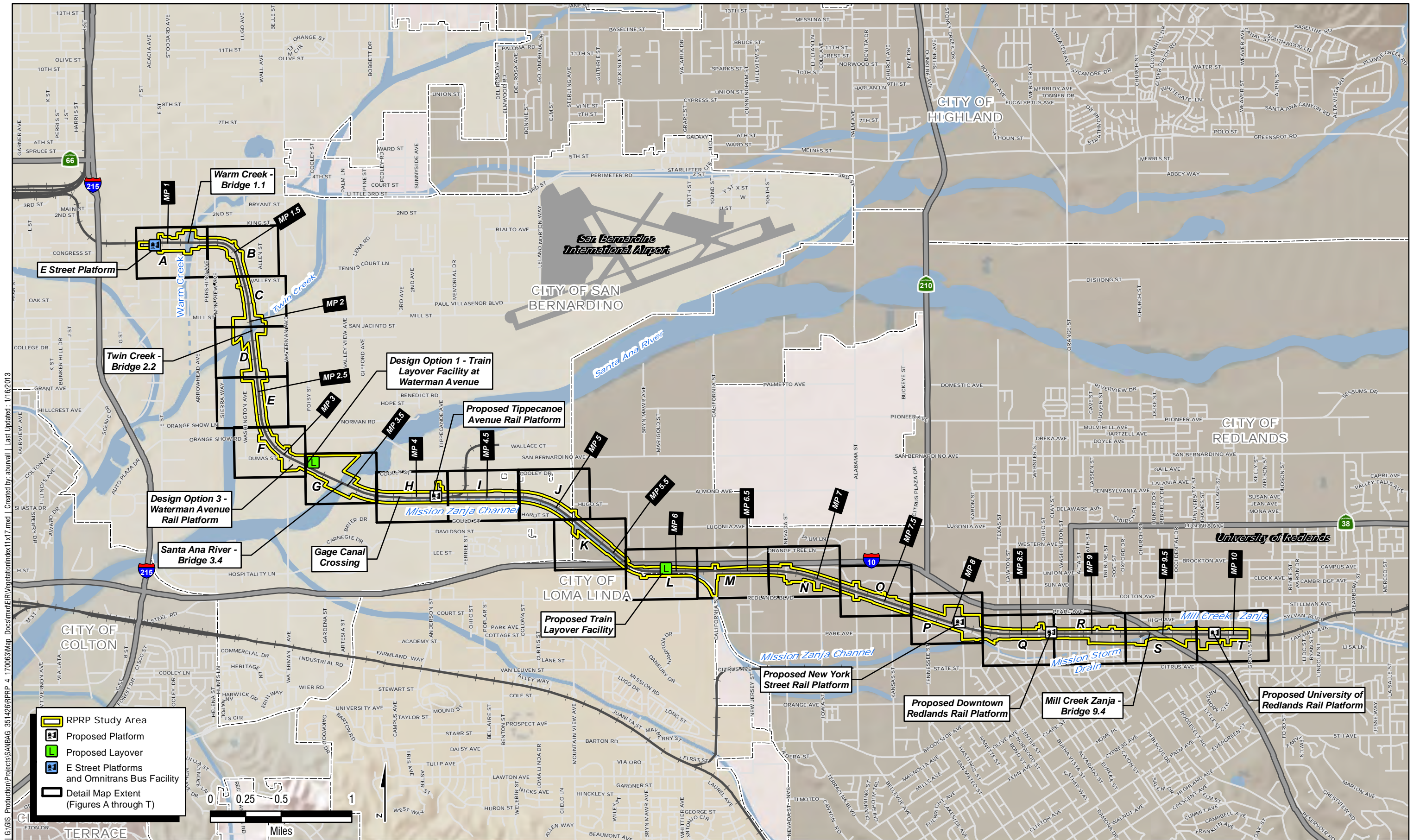






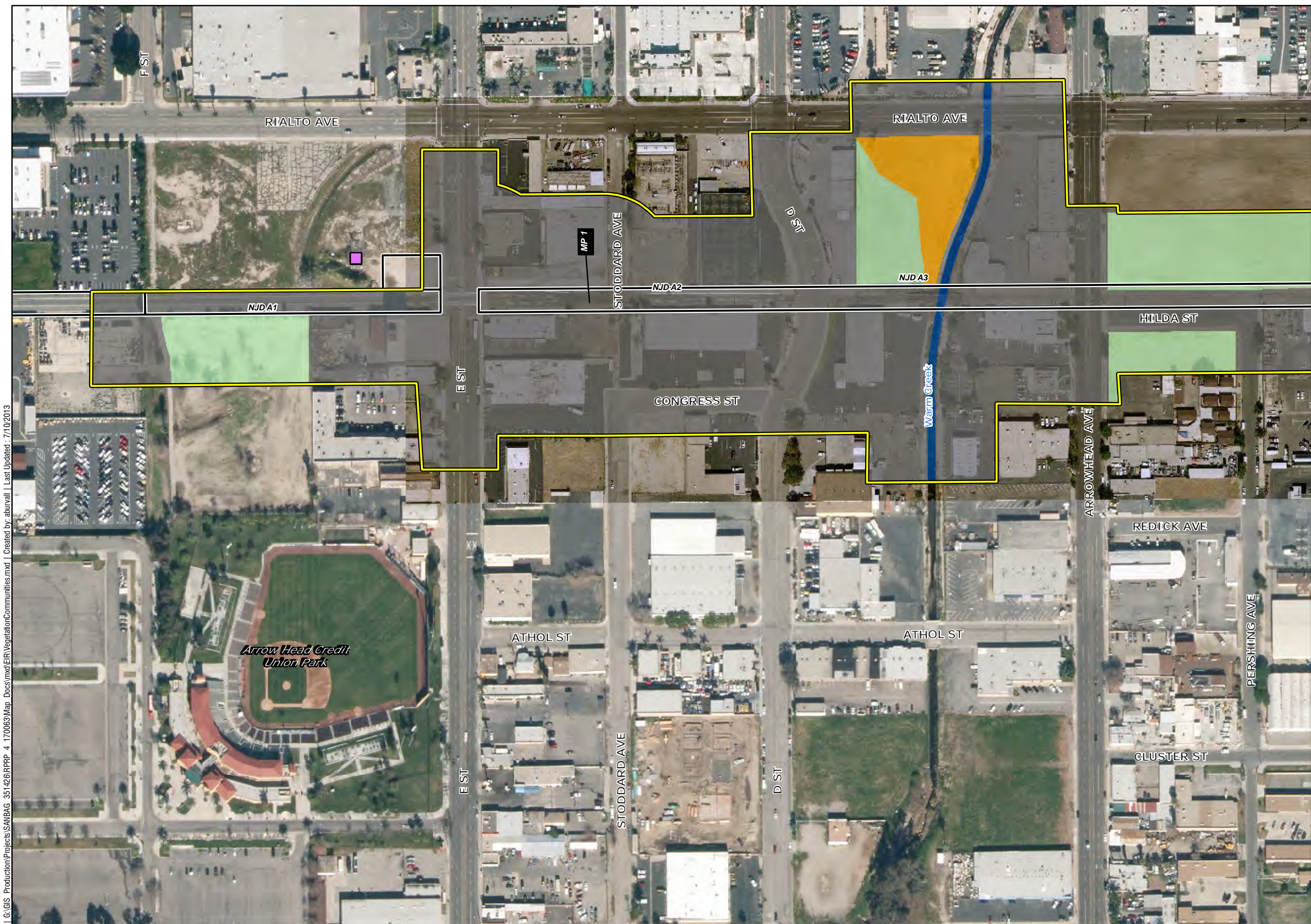




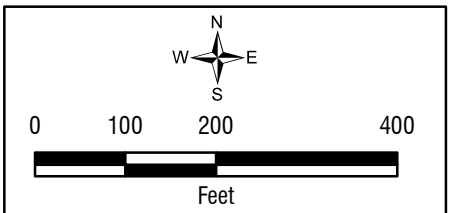
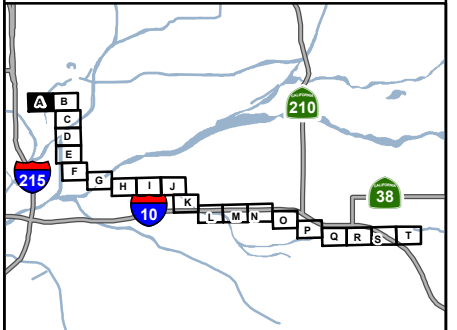








- RPRP Study Area
- Railroad ROW
- Vegetation Community**
  - Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation**
  - Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Santa Ana River Woolly Star



## Vegetation Communities

Figure 4 A

FTA/SANBAG | Redlands Passenger Rail Project | JDR



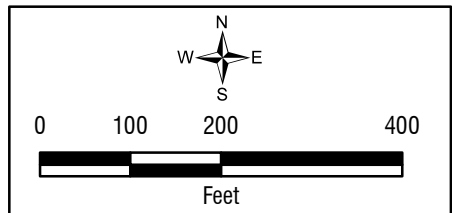
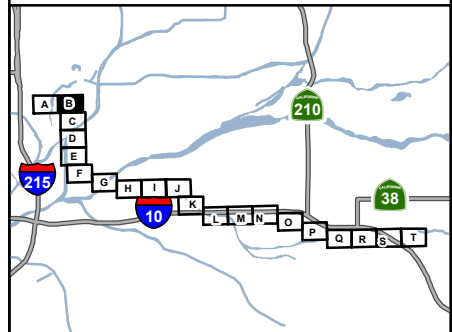




I:\GIS Production\Projects\SANBAG\_35142\PRRP\_4\_170063\Map Docs\mxd\PRRP\_VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Santa Ana River Woolly Star



## Vegetation Communities

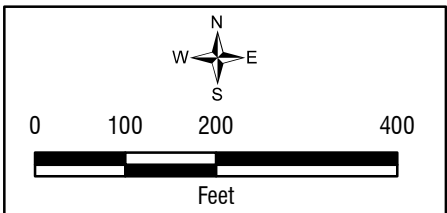
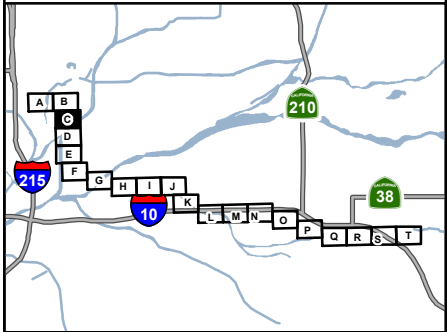
Figure 4 B

FTA/SANBAG | Redlands Passenger Rail Project | JDR











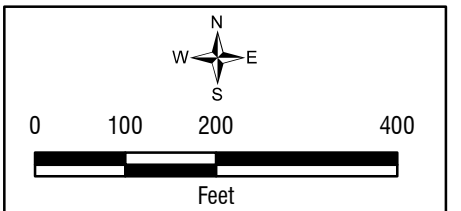
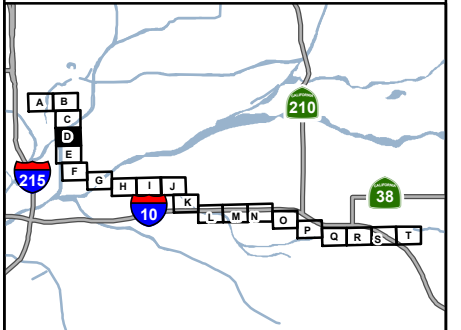




G:\GIS Production\Projects\SANBAG\_35142\RRPP\_4\_170063\Map Docs\mxd\EIR\VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Santa Ana River Woolly Star



## Vegetation Communities

Figure 4 D

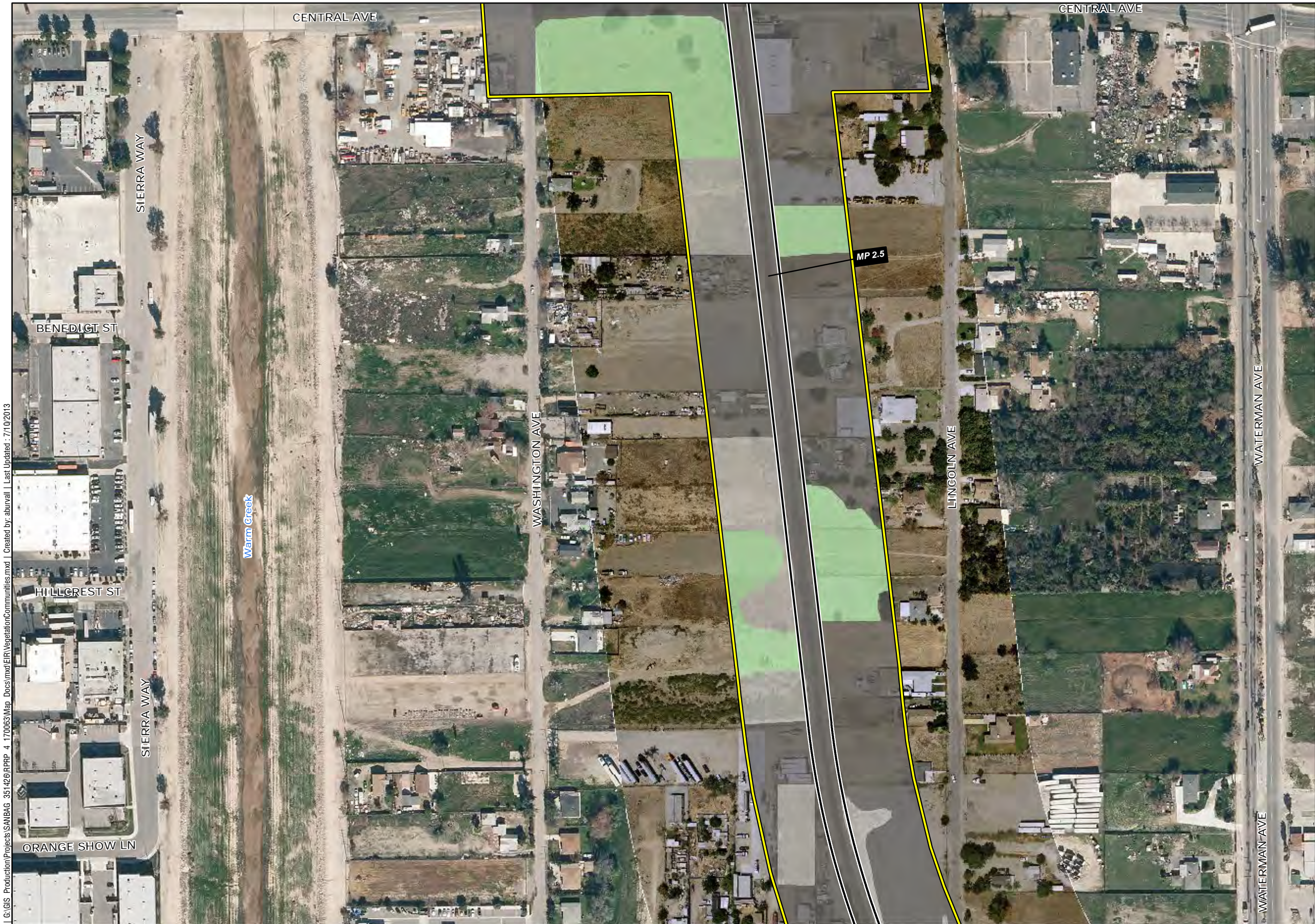
FTA/SANBAG | Redlands Passenger Rail Project | JDR



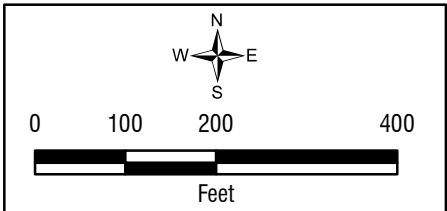
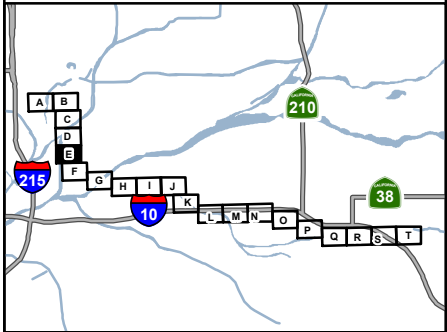




I:\GIS\Production\Projects\SANBAG\_35142\RRPP\_4\_170063\Map\_Docs\mxd\RRPP\_VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Santa Ana River Woolly Star



## Vegetation Communities

Figure 4 E

FTA/SANBAG | Redlands Passenger Rail Project | JDR



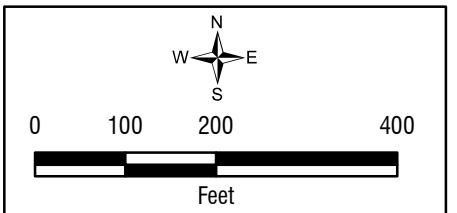
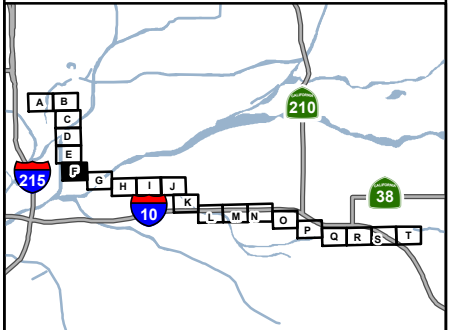




I:\GIS Production\Projects\SANBAG\_351426\PRPP\_4\_170063\Map\_Docs\mxd\EIR\VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Santa Ana River Woolly Star



## Vegetation Communities

Figure 4F

FTA/SANBAG | Redlands Passenger Rail Project | JDR



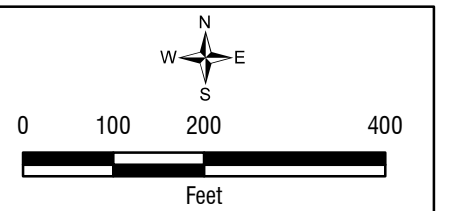
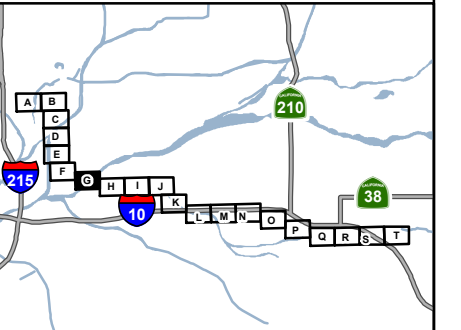




G:\GIS Production\Projects\SANBAG\_351426\PRRP\_4\_170063\Map Docs\mxd\PRRP\_VegetationCommunities.mxd | Created by: aburall | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community**
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation**
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Sana Ana River Woolly Star





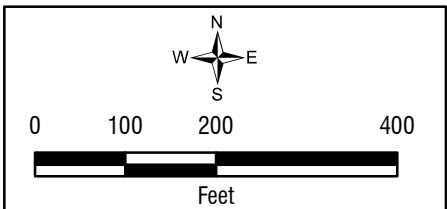
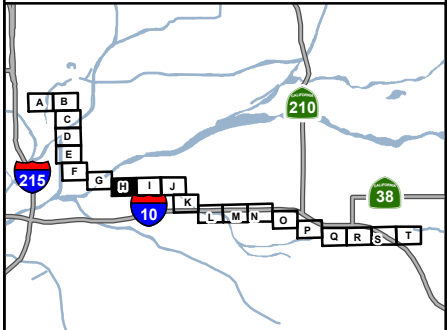




G:\GIS Production\Projects\SANBAG\_35142\RRPP\_4\_170063\Map Docs\mxd\RRPP\_VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Sana Ana River Woolly Star

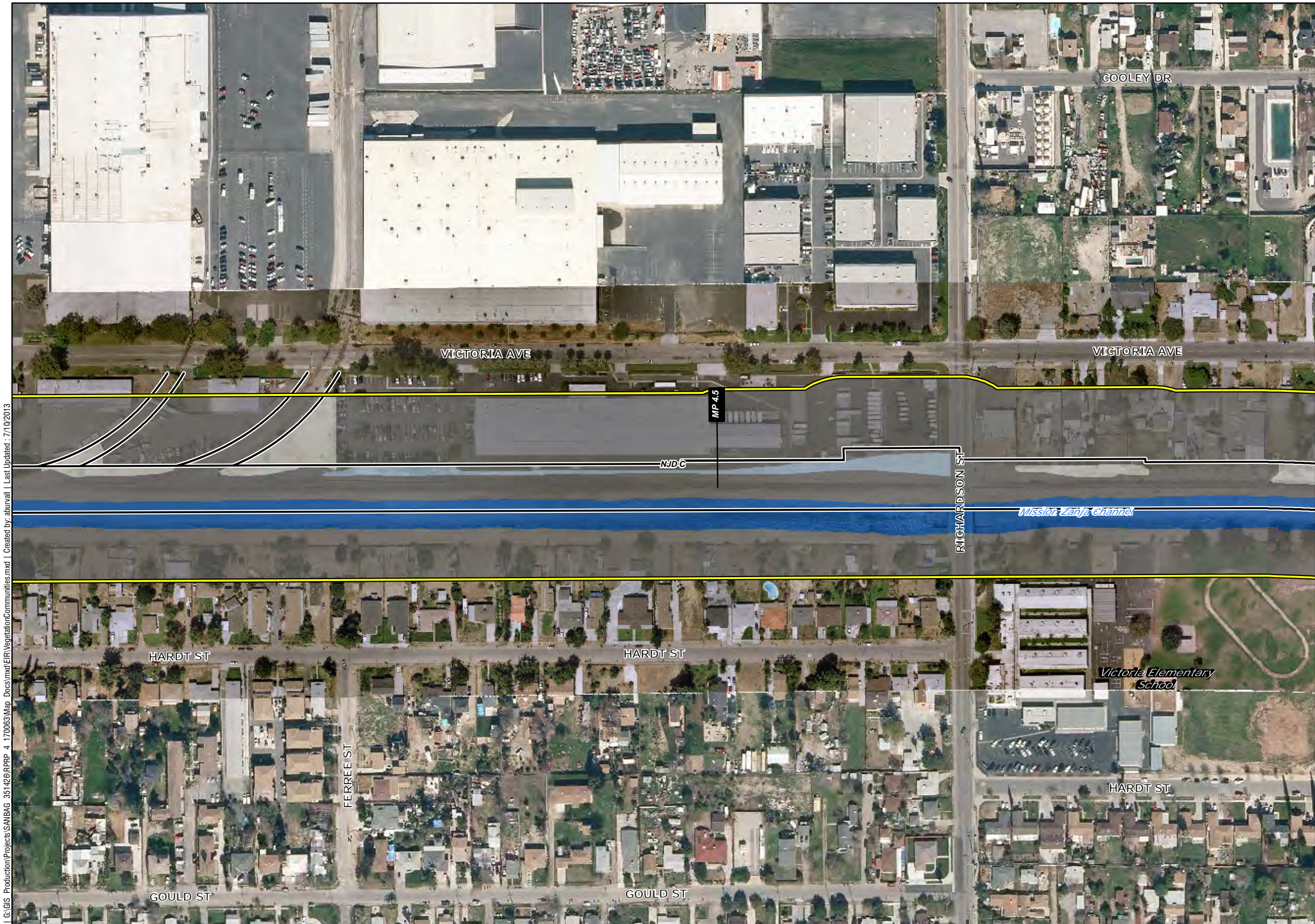




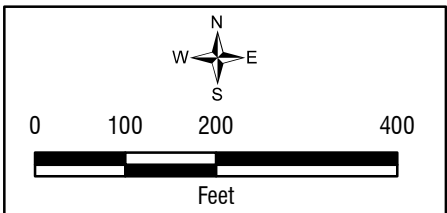
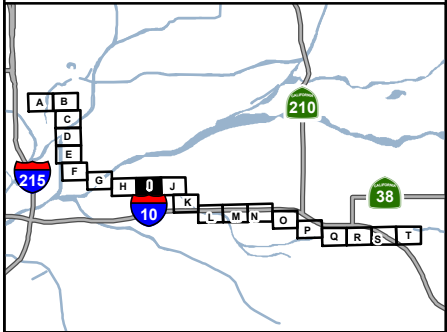




G:\GIS Production\Projects\SANBAG\_35142\RRPP\_4\_170063\Map Docs\mxd\RRPP\_VegetationCommunities.mxd | Created by: aburall | Last Updated: 7/10/2013



- RPRP Study Area**
- Railroad ROW
- Vegetation Community**
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation**
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Sana Ana River Woolly Star





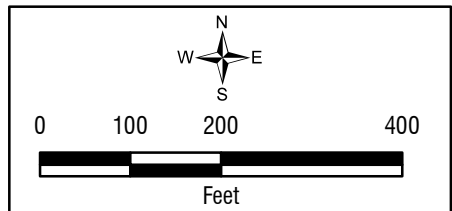
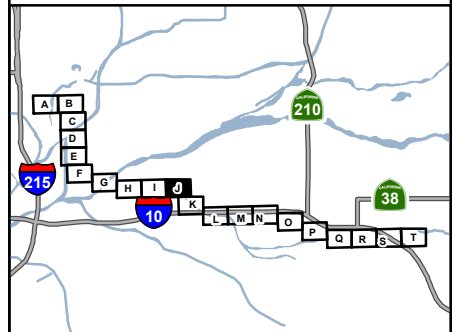




G:\GIS Production\Projects\SANBAG\_35142\RRPP\_4\_170063\Map Docs\mxd\RRPP\_VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Santa Ana River Woolly Star





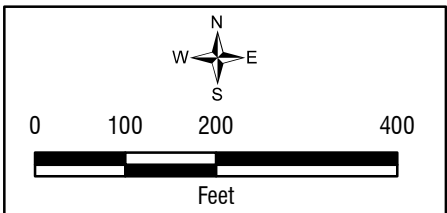
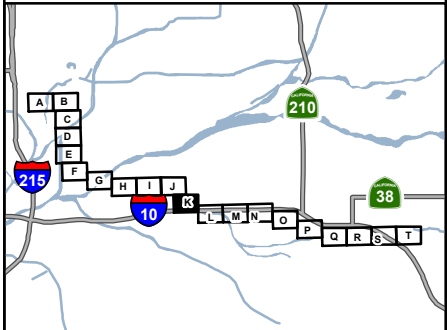




G:\GIS Production\Projects\SANBAG\_351426\PRPP\_4\_170063\Map Docs\mxd\PRPP\_VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area**
- Railroad ROW
- Vegetation Community**
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation**
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Sana Ana River Woolly Star



Vegetation Communities

Figure 4K



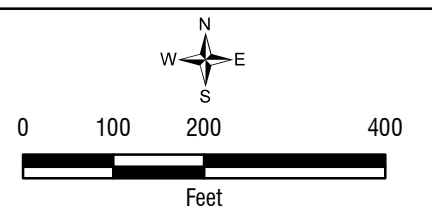
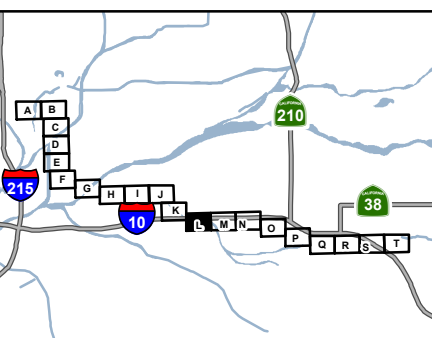




G:\GIS Production\Projects\SANBAG\_351426\PRRP\_4\_170063\Map Docs\mxd\PRRP\_VegetationCommunities.mxd | Created by: aburall | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community
  - Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation
  - Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Sana Ana River Woolly Star





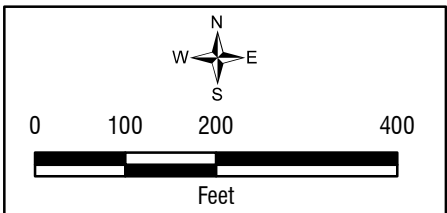
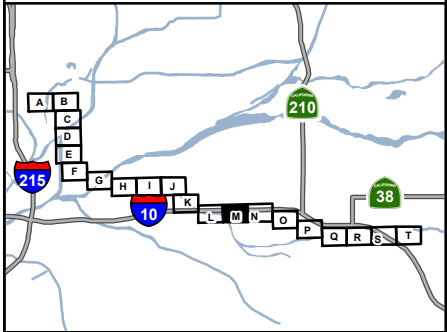




G:\GIS Production\Projects\SANBAG\_351426\RPRP\_4\_170063\Map Docs\mxd\EIR\VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area**
- Railroad ROW
- Vegetation Community**
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation**
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Sana Ana River Woolly Star



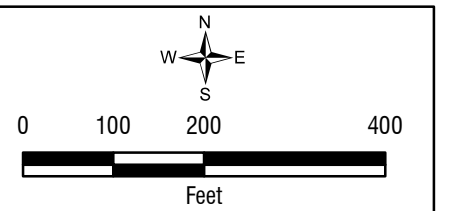
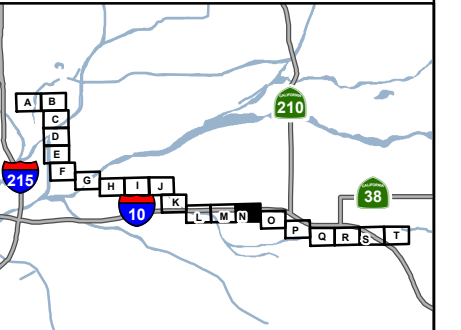








- RPRP Study Area**
- Railroad ROW**
- Vegetation Community**
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation**
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Sana Ana River Woolly Star



## Vegetation Communities

Figure 4 N

FTA/SANBAG | Redlands Passenger Rail Project | JDR

G:\GIS Production\Projects\SANBAG\_351426\RPRP\_4\_170063\Map Docs\mxd\ER\VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



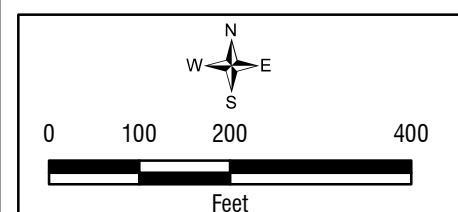
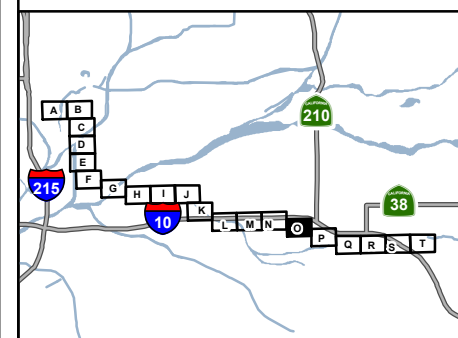




G:\GIS Production\Projects\SANBAG\_35142\RRPP\_4\_170063\Map Docs\mxd\RR\VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community**
  - Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation**
  - Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Santa Ana River Woolly Star





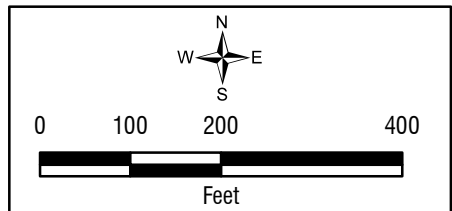
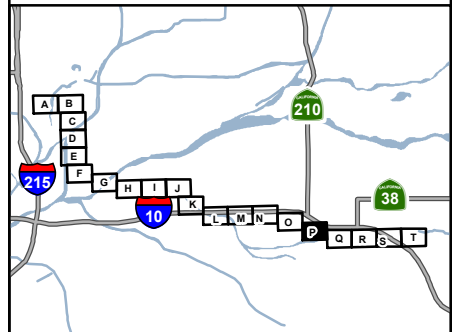




G:\GIS Production\Projects\SANBAG\_351426\PRRP\_4\_170063\Map Docs\mxd\PRRP\_VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area**
- Railroad ROW**
- Vegetation Community**
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation**
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Sana Ana River Woolly Star



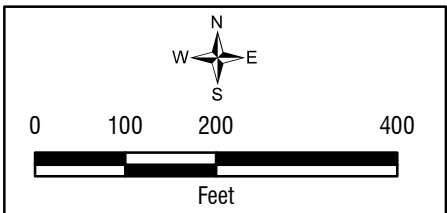
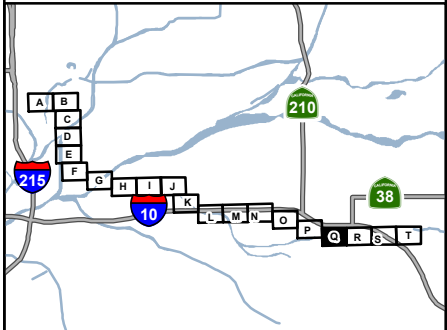








- RPRP Study Area
- Railroad ROW
- Vegetation Community**
  - Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation**
  - Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Sana Ana River Woolly Star



## Vegetation Communities

Figure 4 Q

FTA/SANBAG | Redlands Passenger Rail Project | JDR

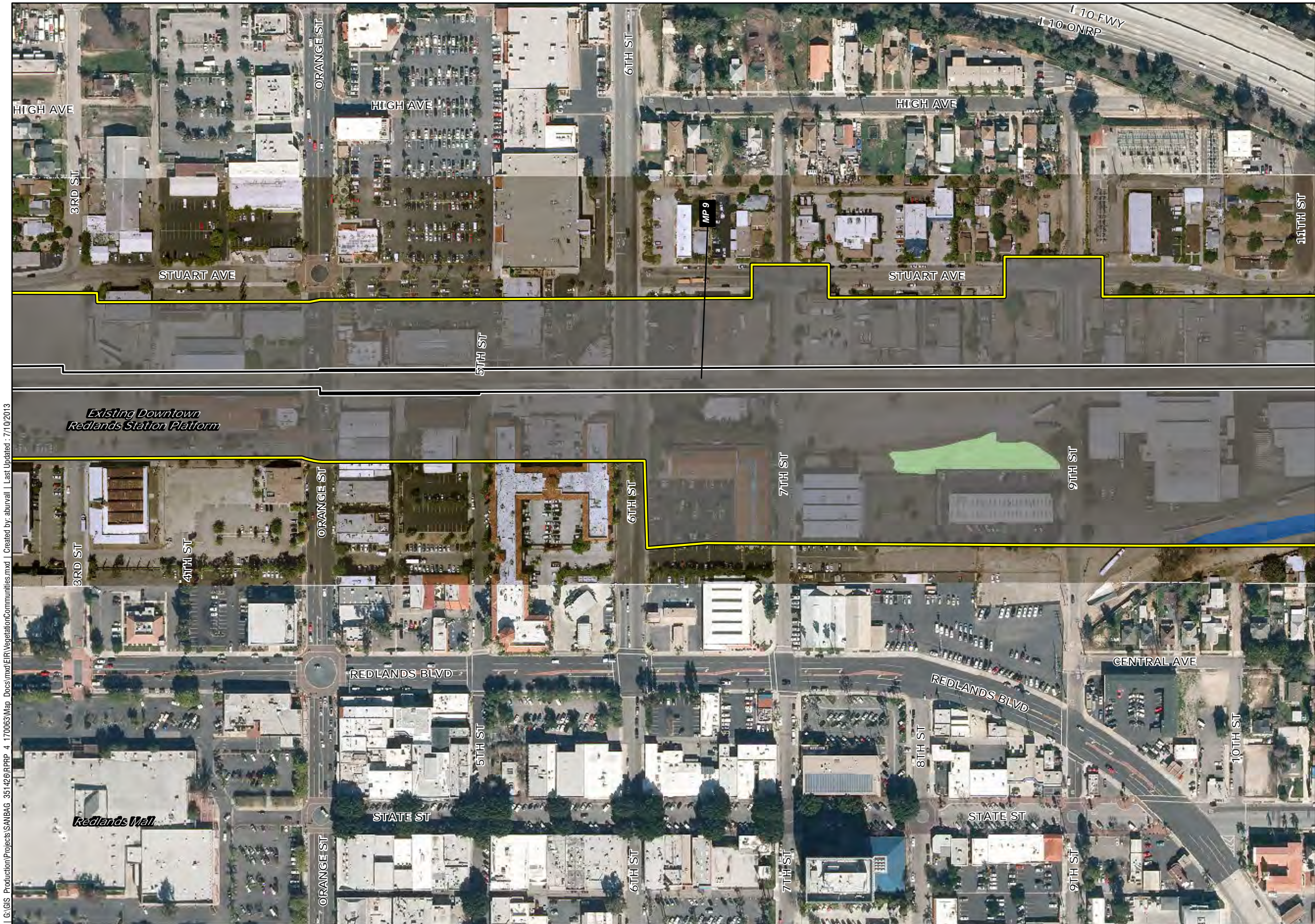
G:\GIS Production\Projects\SANBAG 351426\RPRP 4 170063\Map Docs\mxd\ER\VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013







G:\GIS Production\Projects\SANBAG 35142\RP RP 4 170063\Map Docs\mxd\RP RP VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013





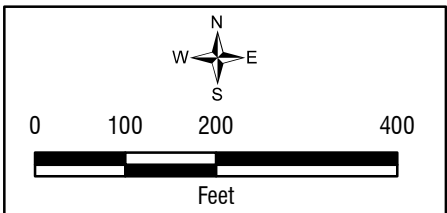
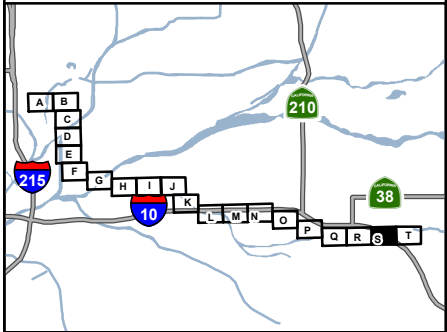




G:\GIS Production\Projects\SANBAG\_35142\RRPP\_4\_170063\Map Docs\mxd\RRPP\_VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Vegetation Community
- Disturbed Habitat
  - Disturbed Wetland
  - Eucalyptus Woodland
  - Flat-top Buckwheat Scrub
  - Mulefat Scrub
  - Non Jurisdictional Ditch
  - Non-native Grassland
  - NonVegetated Channel
  - Oak Woodland
  - Orchard and Vineyards
  - Southern Willow Scrub
  - Southern Cottonwood Willow Riparian Forest
  - Tamarisk Scrub
  - Urban/Developed
- Species Observation
- Non-Breeding Season BUOW Observation
  - Least Bell's Vireo
  - Santa Ana River Woolly Star



## Vegetation Communities

Figure 4 S

FTA/SANBAG | Redlands Passenger Rail Project | JDR



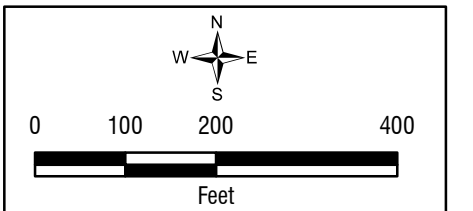
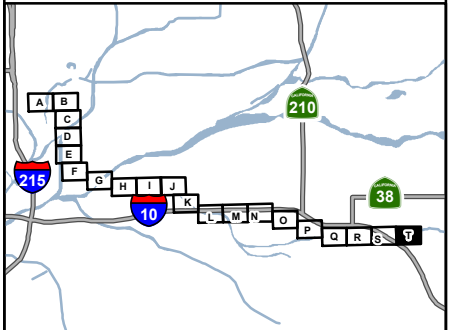




G:\GIS Production\Projects\SANBAG\_351426\RPRP\_4\_170063\Map Docs\mxd\EIR\VegetationCommunities.mxd | Created by: aburval | Last Updated: 7/10/2013



-  RPRP Study Area
-  Railroad ROW
- Vegetation Community
-  Disturbed Habitat
  -  Disturbed Wetland
  -  Eucalyptus Woodland
  -  Flat-top Buckwheat Scrub
  -  Mulefat Scrub
  -  Non Jurisdictional Ditch
  -  Non-native Grassland
  -  NonVegetated Channel
  -  Oak Woodland
  -  Orchard and Vineyards
  -  Southern Willow Scrub
  -  Southern Cottonwood Willow Riparian Forest
  -  Tamarisk Scrub
  -  Urban/Developed
- Species Observation
-  Non-Breeding Season BUOW Observation
  -  Least Bell's Vireo
  -  Sana Ana River Woolly Star



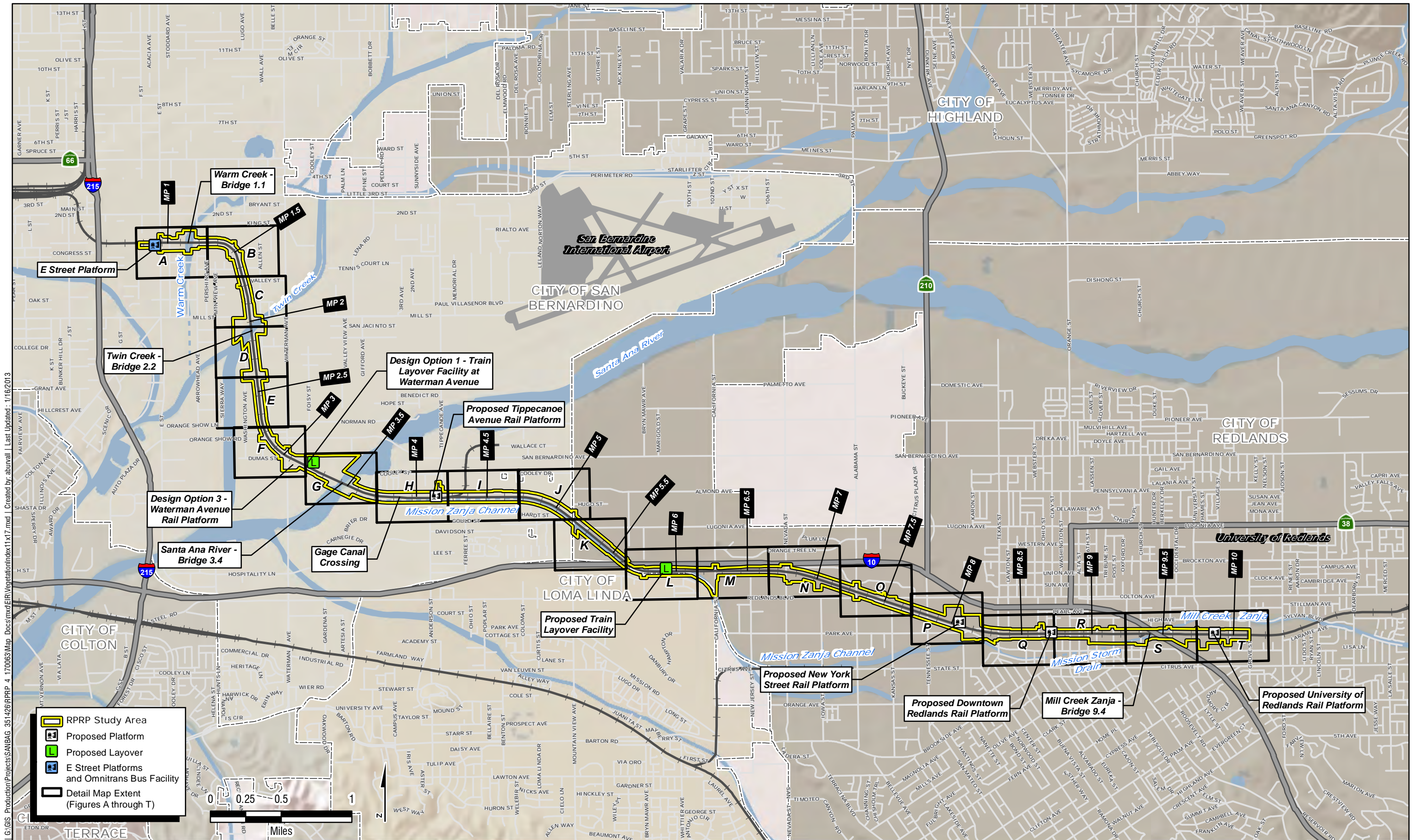
## Vegetation Communities

Figure 4 T

FTA/SANBAG | Redlands Passenger Rail Project | JDR





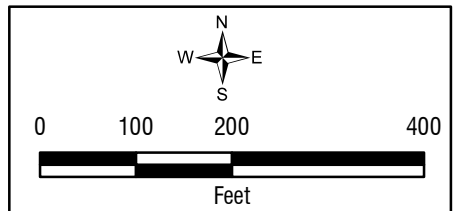
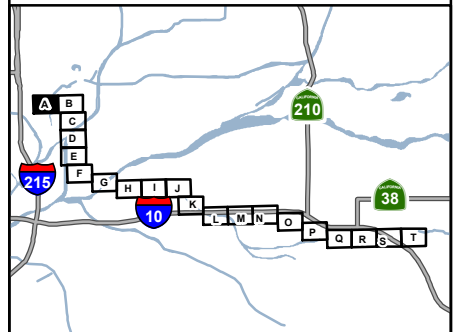








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S.
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 A

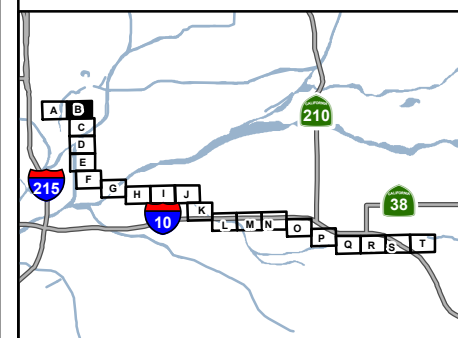








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



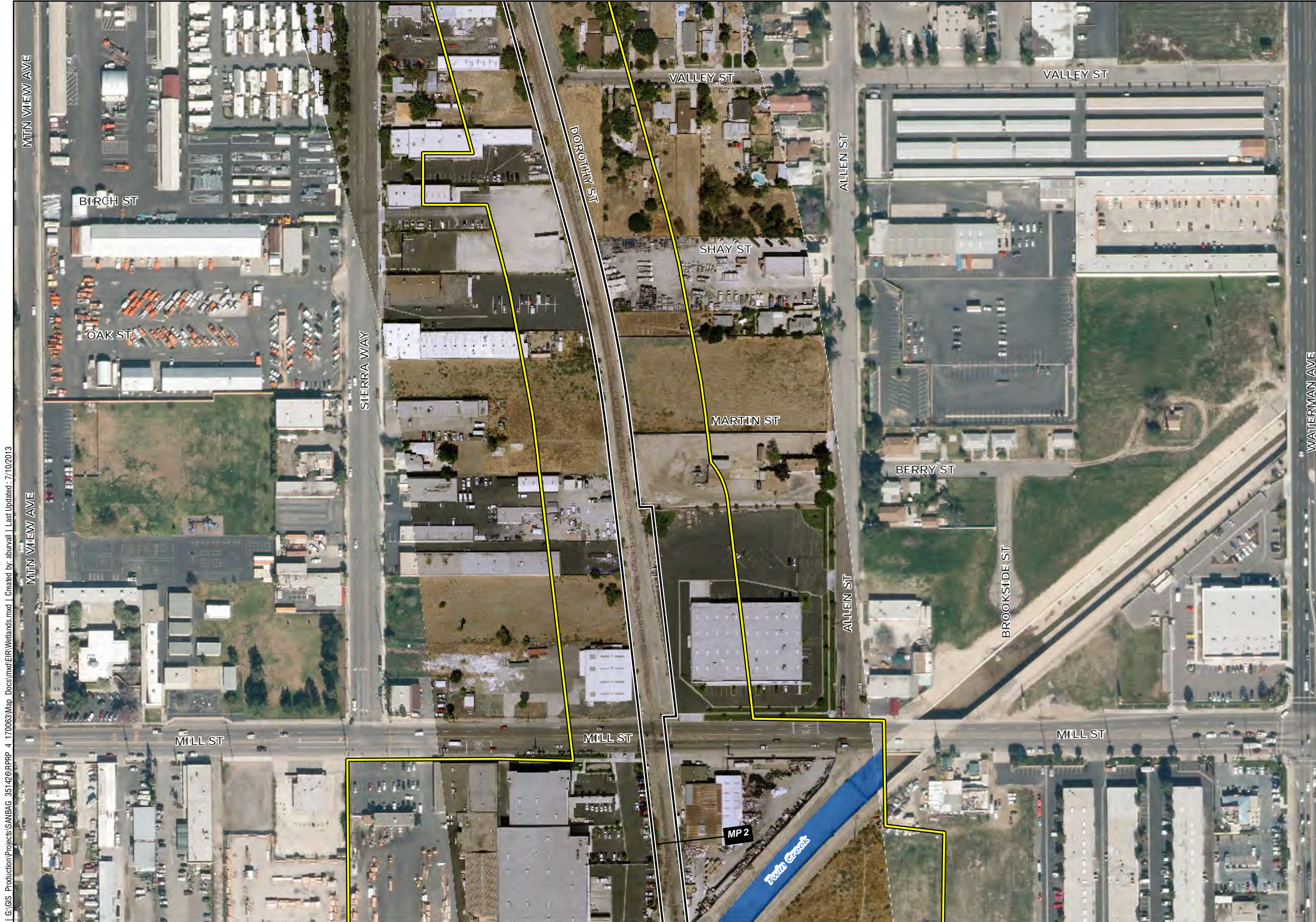
Wetland and Waters of the U.S

Figure 5 B

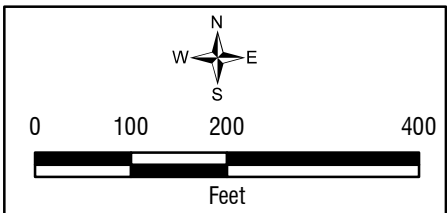
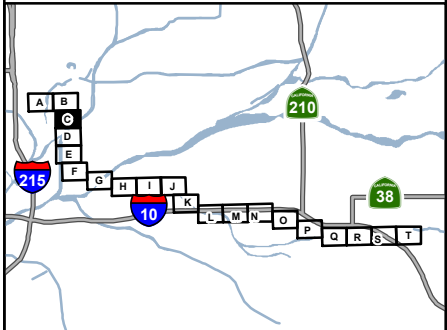








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 C

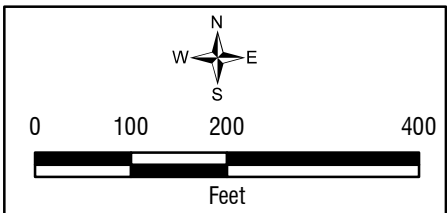
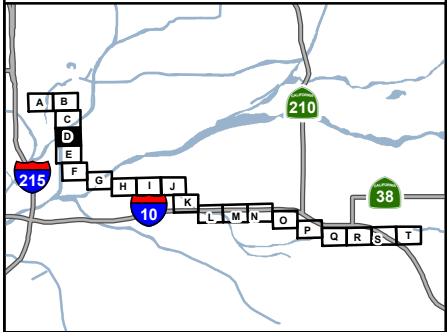








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 D



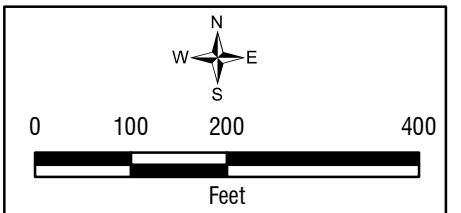
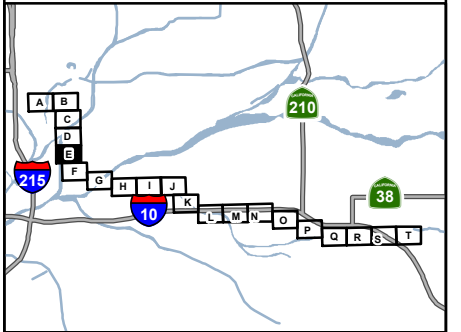




I:\GIS\Production\Projects\SANBAG\_351426\RPRP\_4\_170063\Map\_Docs\mxd\EIR\Wetlands.mxd | Created by: aburvall | Last Updated: 7/10/2013



- RPRP Study Area
- Railroad ROW
- Jurisdiction**
  - CDFW
  - USACE Waters of the U.S
  - USACE Wetlands
  - Non Jurisdictional Ditch
  - Soil Pit



Wetland and Waters of the U.S

Figure 5 E

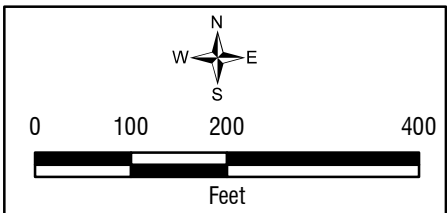
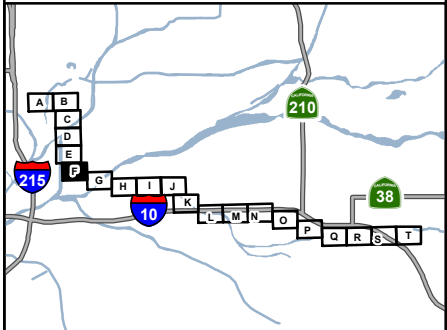








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 F

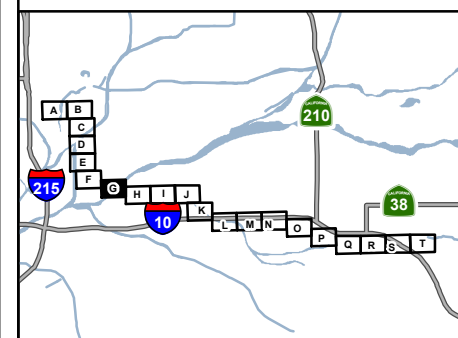








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



G:\GIS Production\Projects\SANBAG\_35142\RP RP\_4\_170063\Map Docs\mxd\ER\Wetlands.mxd | Created by: aburval | Last Updated: 7/10/2013

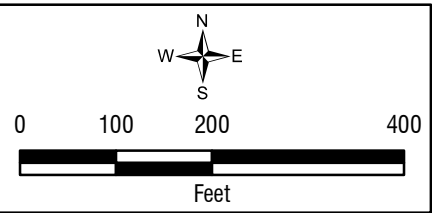
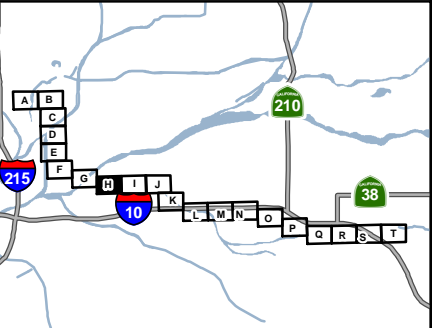








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 H

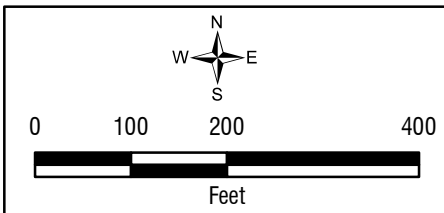
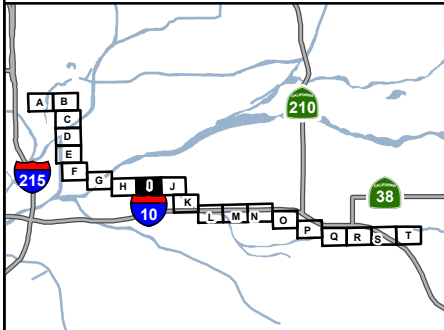








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S.
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



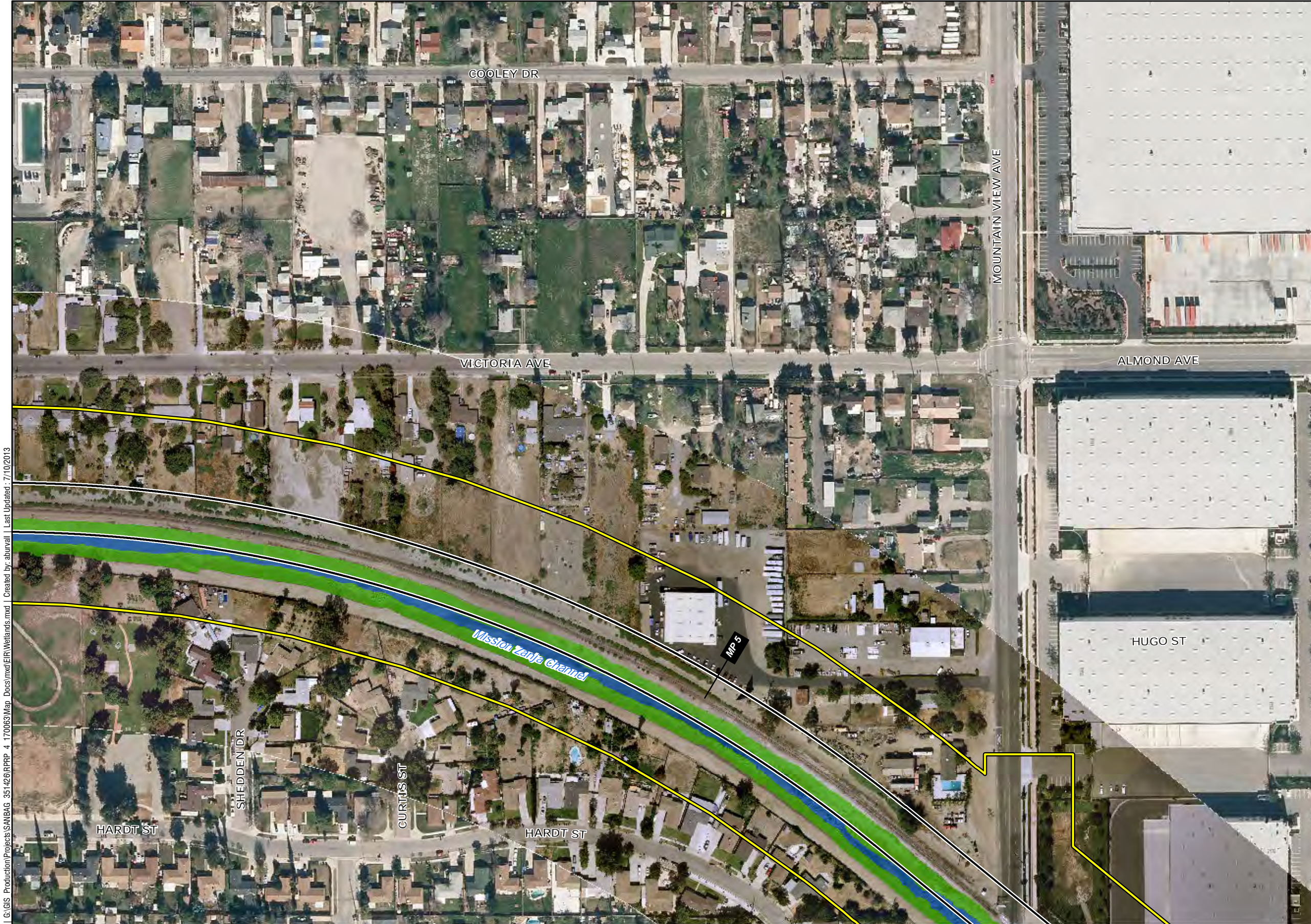
Wetland and Waters of the U.S

Figure 5 I

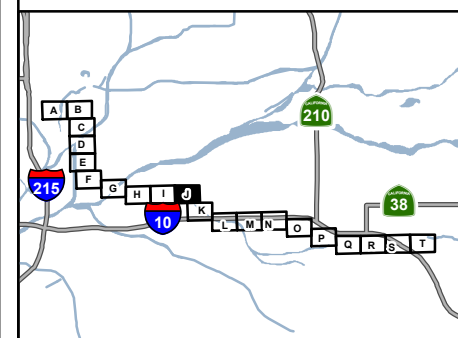








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S.
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 J

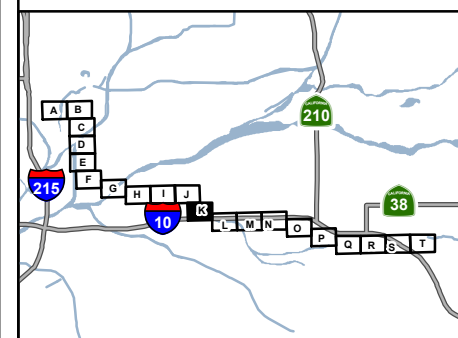








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



G:\GIS Production\Projects\SANBAG\_35142\PRPP\_4\_170063\Map Docs\mxd\Wetlands.mxd | Created by: aburval | Last Updated: 7/10/2013

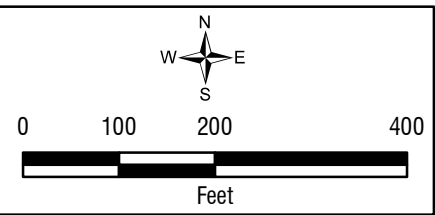
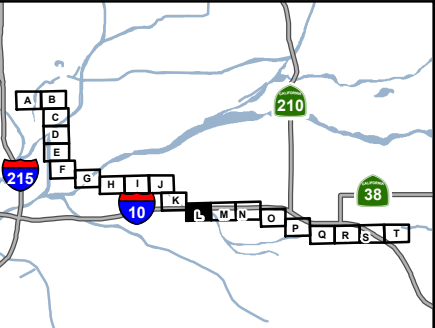








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



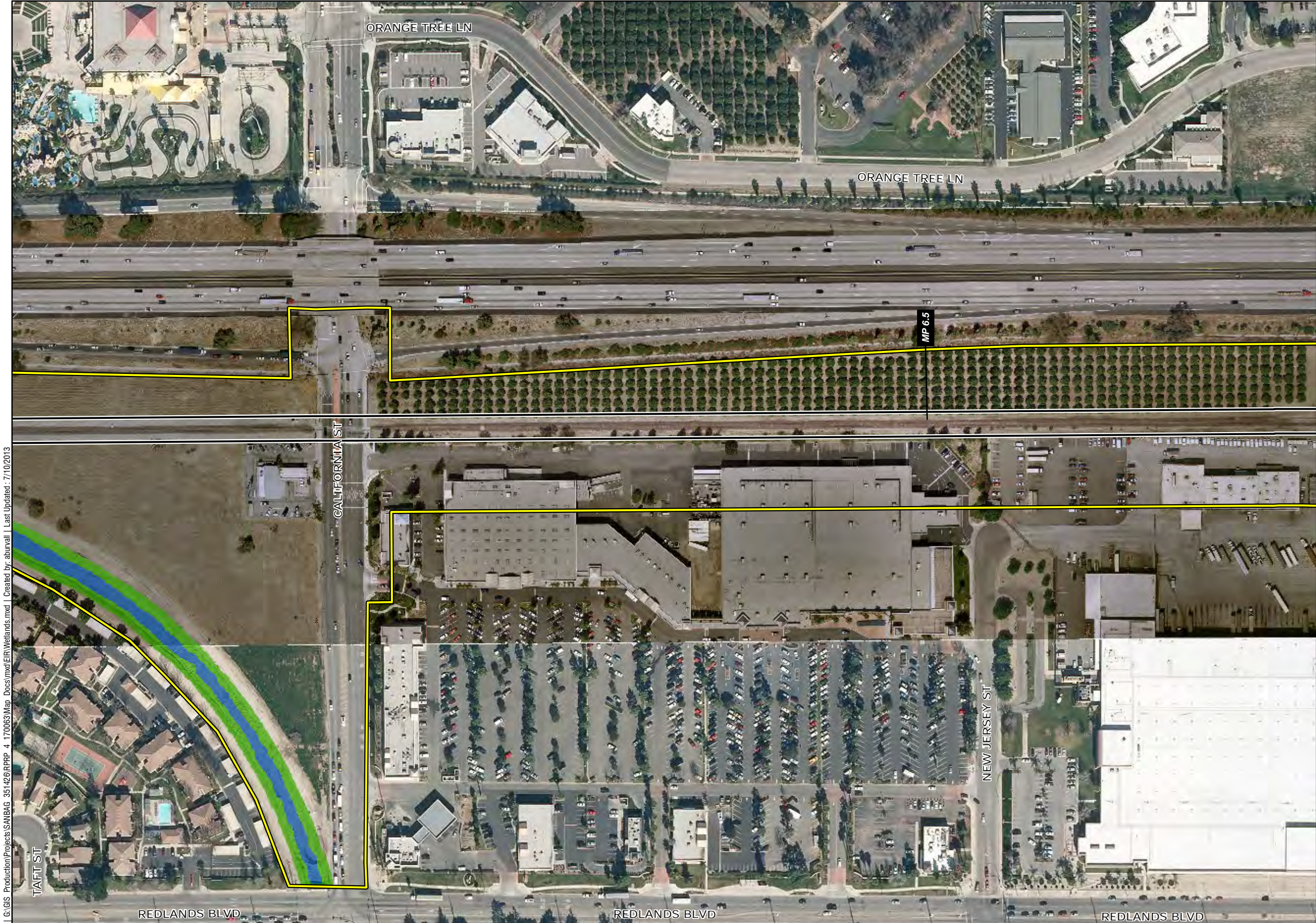
Wetland and Waters of the U.S

Figure 5 L

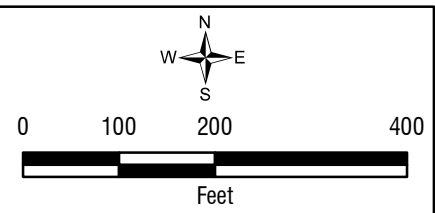
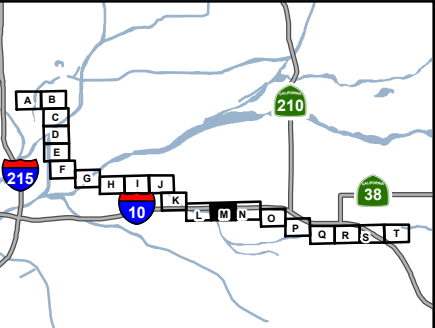








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 M

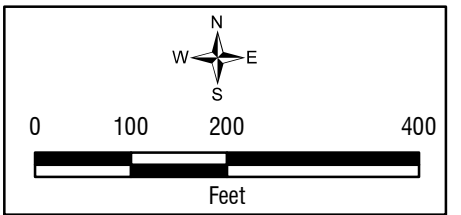
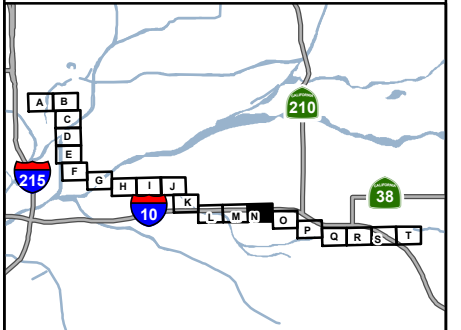








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S.
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 N

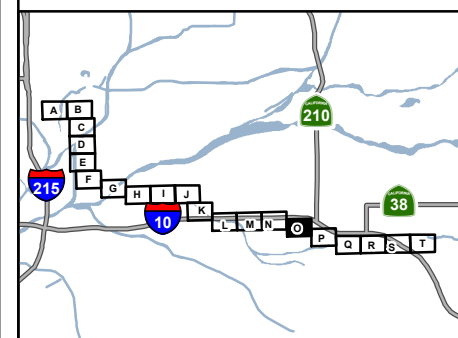








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S.
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



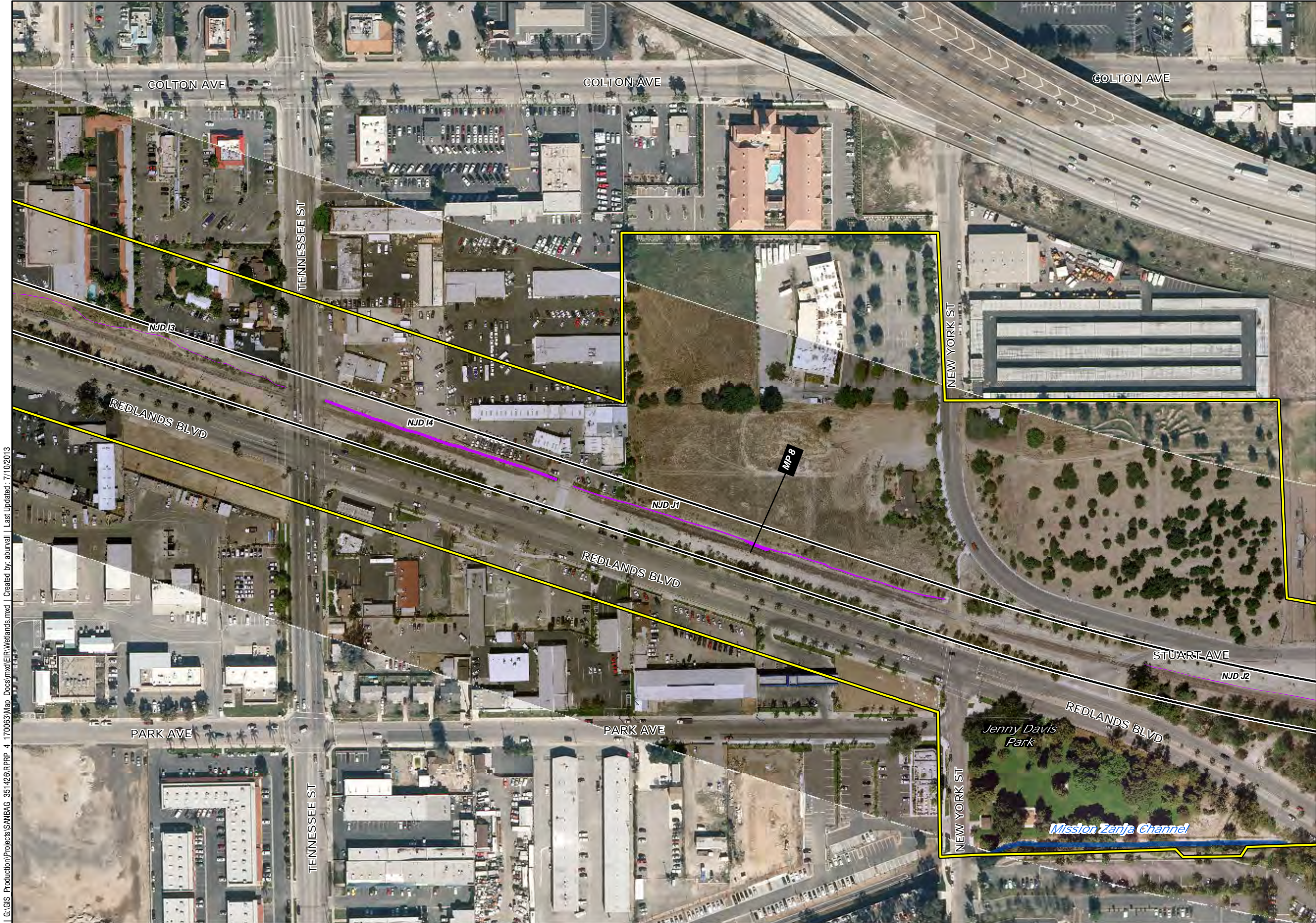
Wetland and Waters of the U.S

G:\GIS Production\Projects\SANBAG 351426\PRRP 4 170063\Map Docs\mxd\ER\Wetlands.mxd | Created by: aburvall | Last Updated: 7/10/2013

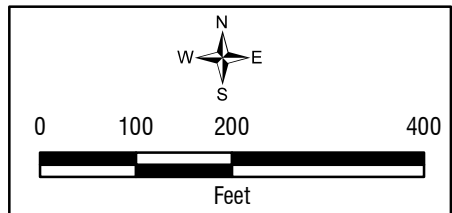
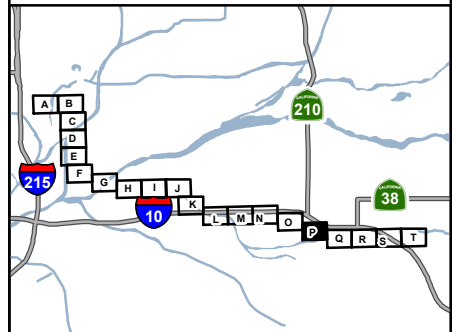








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S.
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 P

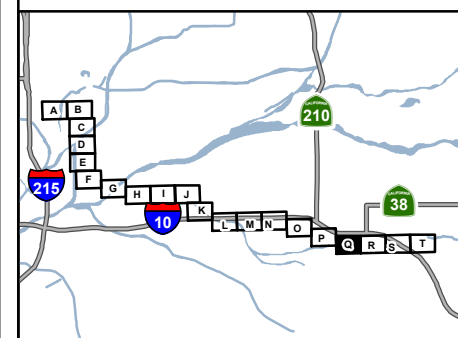








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



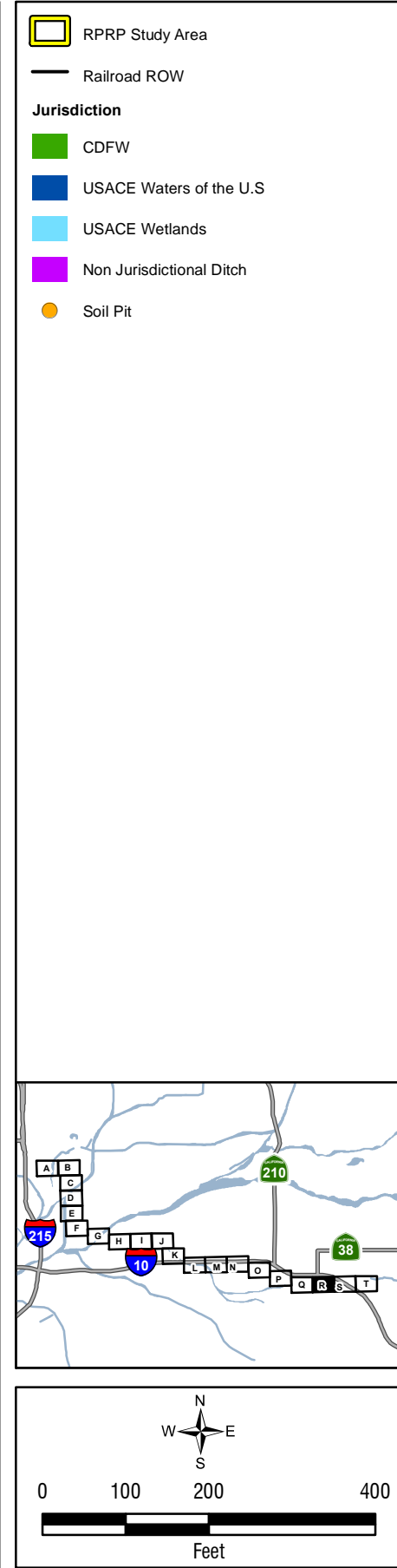
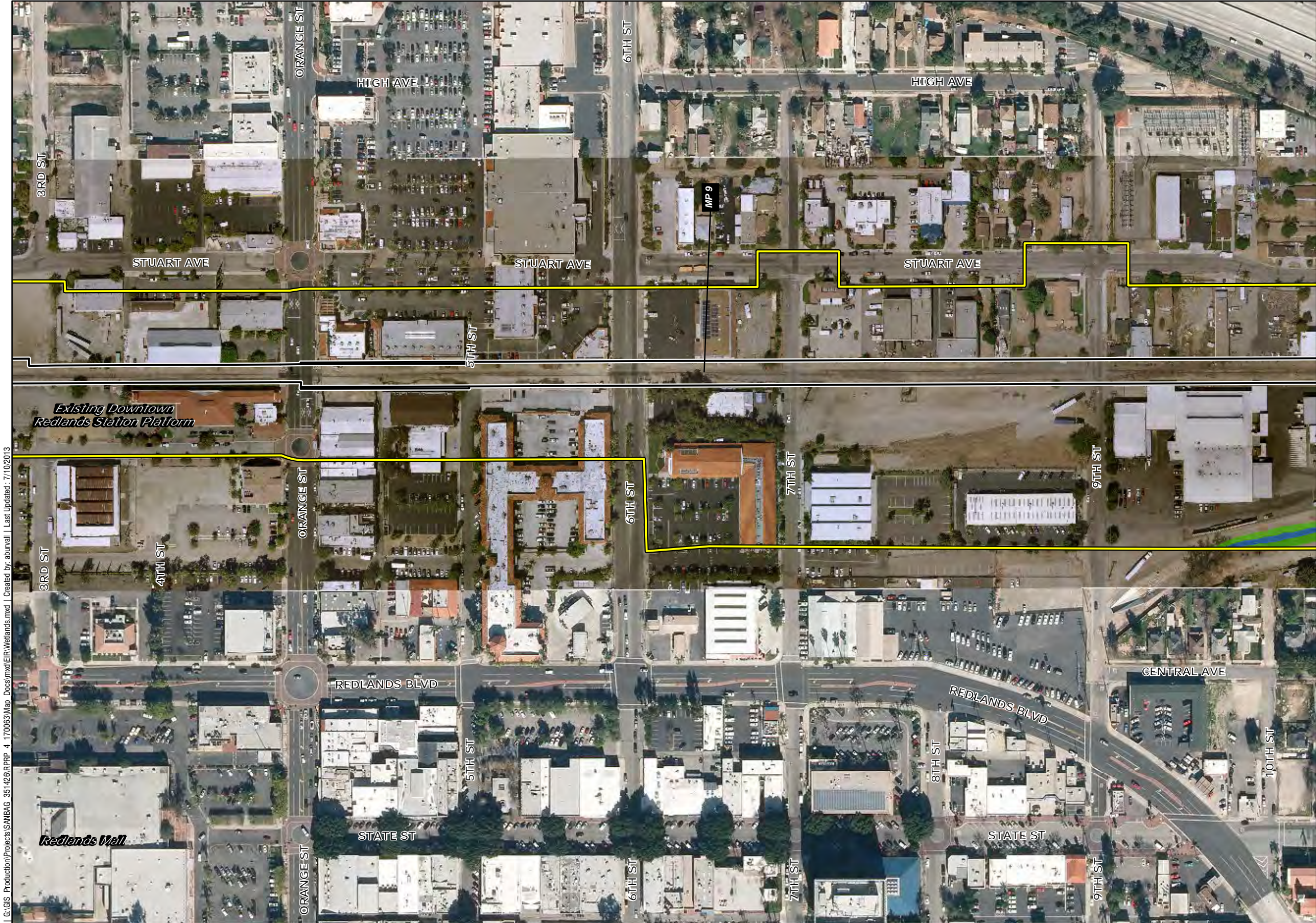
Wetland and Waters of the U.S

Figure 5 Q









G:\GIS Production\Projects\SANBAG\_35142\PRPP\_4\_170063\Map Docs\mxd\PRPP\Wetlands.mxd | Created by: aburval | Last Updated: 7/10/2013

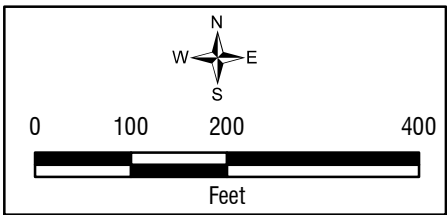
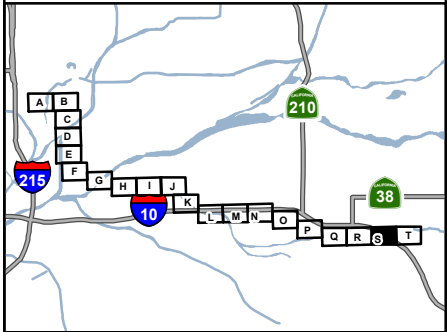








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

Figure 5 S

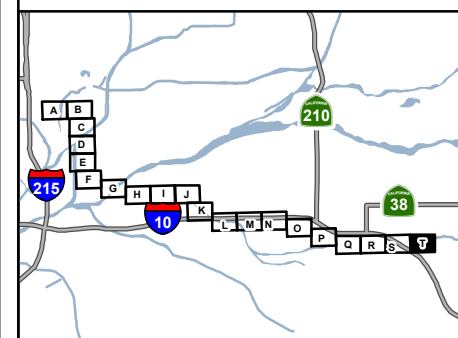








- RPRP Study Area
- Railroad ROW
- Jurisdiction**
- CDFW
- USACE Waters of the U.S
- USACE Wetlands
- Non Jurisdictional Ditch
- Soil Pit



Wetland and Waters of the U.S

G:\GIS Production\Projects\SANBAG 35142\PRRP 4 170063\Map Docs\mxd\PRRP\Wetlands.mxd | Created by: aburval | Last Updated: 7/10/2013







## **APPENDIX B**

### **Site Photographs Jurisdictional Waters and Wetlands**







Photograph 1. Disturbed habitat.



Photograph 2. North side of Twin Creek. Location of soil pit #3.





Photograph 3. Twin Creek. Southwesterly view. Soil pit #3 is on north side of creek and soil pit #4 is on the south side.



Photograph 4. Eucalyptus woodland habitat.





Photograph 5. Warm Creek. Northerly view.



Photograph 6. Where the Zanja Channel meets the Santa Ana River.





Photograph 7. South side overflow of Santa Ana River. Westerly view.



Photograph 8. Overview of overflow from Santa Ana River.





Photograph 9. Urban/Developed habitat.



Photograph 10. Stormwater from adjacent urban areas channels into the railroad ROW and is transported through a series of culverts into larger drainages.



Photograph 11. Santa Ana River. Westerly view.



Photograph 12. Zanja Channel





Photograph 13. Mill Creek Zanja. Westerly view.



Photograph 14. Mill Creek Zanja. Northwesterly view.





Photograph 15. Soil pit #1.



Photograph 16. Overview of soil pit #1 location.





Photograph 17. Overview of soil pit #2 location.



Photograph 18. Manufactured earthen berm separating the storm water runoff (soil pits #1 and #2) from Zanja Channel .

**This page intentionally left blank.**



**APPENDIX C**  
**Wetland Delineation Data Forms**





# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: RPRP City/County: San Bernardino Sampling Date: 2/23/12  
 Applicant/Owner: BNSF State: CA Sampling Point: Area A (93)  
 Investigator(s): Allegra Simmons / Sam Harris Section, Township/Range: California Land Grant  
 Landform (hillside, terrace, fan, etc.): Stream bed Local relief (concave, convex, none): NONE Slope (%): —  
 Subregion (LRR): C Lat: 34.090421 Long: 117.283442 Datum: WGS 84  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: Riverine  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? NO (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area Within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present: Yes <u>X</u> No _____	
Wetland Hydrology Present: Yes <u>X</u> No _____	
Remarks: <u>Significant amount of trash and debris in Area A.</u> <u>Location: Twin Creek</u>	

## VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
Total Cover: _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b>				
1. <u>Salix lasiolepis</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
2. <u>Baccharis salicifolia</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting date in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
5. _____	_____	_____	_____	
<b>Herb Stratum</b>				
1. <u>Typha sp</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Unkn Grass</u>	<u>10</u>	<u>N</u>	<u>—</u>	
3. <u>Veronica anagallis-aquaticum</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	<b>Woody Vine Stratum</b> 1. _____ 2. _____ Total Cover: _____
Total Cover: <u>45</u>	_____	_____	_____	
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				

Remarks: NO BARE ground, all unvegetated areas inundated

## SOIL

Sampling Point: Area A

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

### Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Black Histic (3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

## HYDROLOGY

### Wetland Hydrology Indicators:

**Primary Indicators (any one indicator is sufficient)**

Secondary Indicators (2 or more required)

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Invertebrates (B11)	<input type="checkbox"/> Sediment Deposits (B2) ( <b>Riverine</b> )
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Crayfish Burrows (B12)	<input type="checkbox"/> Drift Deposits (B3) ( <b>Riverine</b> )
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B9)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C2)	<input type="checkbox"/> Dry Season Water Table (C3)
<input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> )	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Salt Deposits (C5)
<input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )	<input type="checkbox"/> Recent Iron Reduction in Plowed Soil (C8)	<input type="checkbox"/> Mud Casts (C9)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D7)
<input checked="" type="checkbox"/> Inundation on Aerial Imagery (B7)	<input checked="" type="checkbox"/> Saturation on Aerial Imagery (C8)	
<input checked="" type="checkbox"/> Water-stained Leaves (B8)	<input type="checkbox"/> Shallow Aquitard (D4)	
<input type="checkbox"/> Biotic Crust (B10)	<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes ☒ No ☐ Depth (inches):

Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Saturation Present? Yes X No      Depth (inches):       
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: RPRP City/County: San Bern Sampling Date: 2/22/12  
 Applicant/Owner: BNSF State: CA Sampling Point: Area B (Sp4)  
 Investigator(s): Alliea Simmons : Sean Harris Section, Township/Range: California Land Grant  
 Landform (hillside, terrace, fan, etc.): Streambed Local relief (concave, convex, none): NONE Slope (%): 0  
 Subregion (LRR): C Lat: 34.090181 Long: -117.283402 Datum: WGS 84  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? NO (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area Within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present: Yes <u>X</u> No _____	
Wetland Hydrology Present: Yes <u>X</u> No _____	
Remarks: <u>Twin Creek</u>	

## VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix sp</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66%</u> (A/B)
2. <u>Pop fremontii (p. deltoides)</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: <u>75</u>				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>BAC SAL</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: <u>20</u>				
Herb Stratum				Hydrophytic Vegetation Indicators: <u>X</u> Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting date in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Avena sp</u>	<u>10</u>	<u>Y</u>	<u>NL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
Total Cover: <u>10</u>				
Woody Vine Stratum				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____

Remarks:

**SOIL**

Sampling Point: Area B

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix

## Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> Red Parent Material (TF2)                           |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)                              |
| <input type="checkbox"/> Black Histic (3)                  | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)                             |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4)  | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Other (Explain in Remarks)                          |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       |  |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |  |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   | <sup>3</sup> Indicators of hydrophytic vegetation hydrology must be present. |

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.

## Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches):

Hydric Soil Present?    Yes            No

Remarks:

Agitation of soil released hydrogen sulfide odor

## HYDROLOGY

### Wetland Hydrology Indicators:

**Primary Indicators (any one indicator is sufficient)**

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                            | <input type="checkbox"/> Aquatic Invertebrates (B11)                |
| <input type="checkbox"/> High Water Table (A2)                         | <input type="checkbox"/> Crayfish Burrows (B12)                     |
| <input checked="" type="checkbox"/> Saturation (A3)                    | <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)      |
| <input checked="" type="checkbox"/> Water Marks (B1)                   | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) ( <b>Nonriverine</b> ) | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Drift Deposits (B3) ( <b>Nonriverine</b> )    | <input type="checkbox"/> Recent Iron Reduction in Plowed Soil (C8)  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                      | <input checked="" type="checkbox"/> Muck Surface (C7)               |
| <input checked="" type="checkbox"/> Inundation on Aerial Imagery (B7)  | <input type="checkbox"/> Saturation on Aerial Imagery (C8)          |
| <input checked="" type="checkbox"/> Water-stained Leaves (B8)          | <input type="checkbox"/> Shallow Aquitard (D4)                      |
| <input type="checkbox"/> Biotic Crust (B10)                            | <input type="checkbox"/> Other (Explain in Remarks)                 |

Secondary Indicators (2 or more required)

- Water Marks (B1) (Riverine)  
Sediment Deposits (B2) (Riverine)  
Drift Deposits (B3) (Riverine)  
Drainage Patterns (B9)  
Dry Season Water Table (C3)  
Salt Deposits (C5)  
Mud Casts (C9)  
FAC-Neutral Test (D7)

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Saturation Present? Yes ☒ No ☐ Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes X No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No standing water but saturated soils



## WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: RPRP City/County: SAN BERNARDINO Sampling Date: 2/22/12  
 Applicant/Owner: BNSF State: CA Sampling Point: SP 1  
 Investigator(s): SEAN HARRIS & Allegra Simon Section, Township/Range: California Land Grant  
 Landform (hillside, terrace, fan, etc.): depression @ culvert outlet Local relief (concave, convex, none): Concave Slope (%):         
 Subregion (LRR): C Lat: 34.073618 Long: -117.264699 Datum: NAD 83  
 Soil Map Unit Name:        NWI classification:       

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No        (If no, explain in Remarks.)  
 Are Vegetation X, Soil       , or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X No         
 Are Vegetation       , Soil       , or Hydrology        naturally problematic? NO (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No <u>      </u>	Is the Sampled Area Within a Wetland?	Yes <u>X</u> No <u>      </u>
Hydric Soil Present:	Yes <u>X</u> No <u>      </u>		
Wetland Hydrology Present:	Yes <u>X</u> No <u>      </u>		
Remarks:			

## VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80%</u> (A/B)
1. <u>SALIX lasiolepis</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Populus fremontii (p. deltoides)</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
Total Cover:	<u>80</u>			
Sapling/Shrub Stratum				
1. <u>PROCELRIS salicifolia</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: <u>      </u> Multiply by: OBL species <u>      </u> x 1 = <u>      </u> FACW species <u>      </u> x 2 = <u>      </u> FAC species <u>      </u> x 3 = <u>      </u> FACU species <u>      </u> x 4 = <u>      </u> UPL species <u>      </u> x 5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
Total Cover:	<u>20</u>			
Herb Stratum				
1. <u>Comiza canadensis</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>X</u> Dominance Test is >50% <u>      </u> Prevalence Index is ≤3.0 <sup>1</sup> <u>      </u> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>      </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. <u>Sorghum halepense</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
Total Cover:	<u>30</u>			
Woody Vine Stratum				
1. <u>Vitis girdiana</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u>      </u>
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
Total Cover:	<u>40</u>			
% Bare Ground in Herb Stratum <u>2</u> % Cover of Biotic Crust <u>0</u>				

Remarks: An old fence-line is creating a berm that is giving rise to wild grape

Sampling Point: SPI

## HYDROLOGY

US Army Corps of Engineers



# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: RPRP City/County: San Bernardino Sampling Date: SP 2  
 Applicant/Owner: BNSF State: CA Sampling Point: \_\_\_\_\_  
 Investigator(s): AS, SH Section, Township/Range: California Land Grant  
 Landform (hillside, terrace, fan, etc.): Depressional area Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): C Lat: 34.073916 Long: -117.264347 Datum: NAD83  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? NO (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area Within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present: Yes _____ No <u>X</u>	
Wetland Hydrology Present: Yes <u>X</u> No _____	

Remarks: PI taken NORTH of SP 2 in depressional area. Water enters site from adjacent development. Have been blocked from connecting with Mission channel by maintained BERM.

## VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>AMORPHACEAE</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u>	(A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u>	(B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u>	(A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:	
Total Cover: _____				Total % Cover of:	Multiply by:
Sapling/Shrub Stratum				OBL species	x 1 = _____
1. _____	_____	_____	_____	FACW species	x 2 = _____
2. _____	_____	_____	_____	FAC species	<u>50</u> x 3 = <u>150</u>
3. _____	_____	_____	_____	FACU species	<u>15</u> x 4 = <u>60</u>
4. _____	_____	_____	_____	UPL species	x 5 = _____
5. _____	_____	_____	_____	Column Totals: <u>65</u>	(A) <u>210</u> (B)
Total Cover: _____				Prevalence Index = B/A = <u>3.23</u>	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <u>Johnson grass</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	Dominance Test is >50%	
2. <u>Spartina patens</u>	_____	_____	_____	Prevalence Index is ≤3.0 <sup>1</sup>	
3. _____	_____	_____	_____	Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
4. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. _____	_____	_____	_____	Indicators of hydric soil and wetland hydrology must be present.	
6. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
Total Cover: <u>15</u>					
Woody Vine Stratum					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
Total Cover: _____					
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>					

Remarks:

## SOIL

Sampling Point: SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	2.5Y 4/2	100	—	—	—	—	silt clay loam	
2-15	5Y 4/3	100	—	—	—	—	silt clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Black Histic (3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

## HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Invertebrates (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Crayfish Burrows (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C2)	<input type="checkbox"/> Drainage Patterns (B9)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Dry Season Water Table (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soil (C8)	<input type="checkbox"/> Salt Deposits (C5)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Muck Surface (C7)	<input type="checkbox"/> Mud Casts (C9)
<input checked="" type="checkbox"/> Inundation on Aerial Imagery (B7)	<input type="checkbox"/> Saturation on Aerial Imagery (C8)	<input type="checkbox"/> FAC-Neutral Test (D7)
<input type="checkbox"/> Water-stained Leaves (B8)	<input type="checkbox"/> Shallow Aquitard (D4)	
<input type="checkbox"/> Biotic Crust (B10)	<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes X No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: outflow blocked by maintained berm - would otherwise flow to Mission channel. flows coming from offshoot of SANTA ANA RIVER TO NORTH

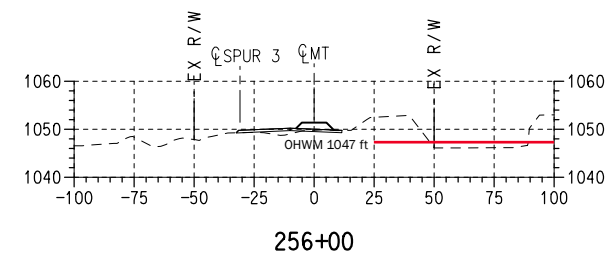


## **APPENDIX D**

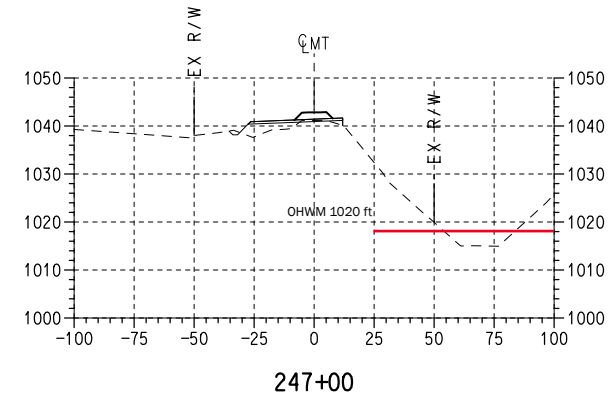
### **Topographic Cross Sections & OHWM**



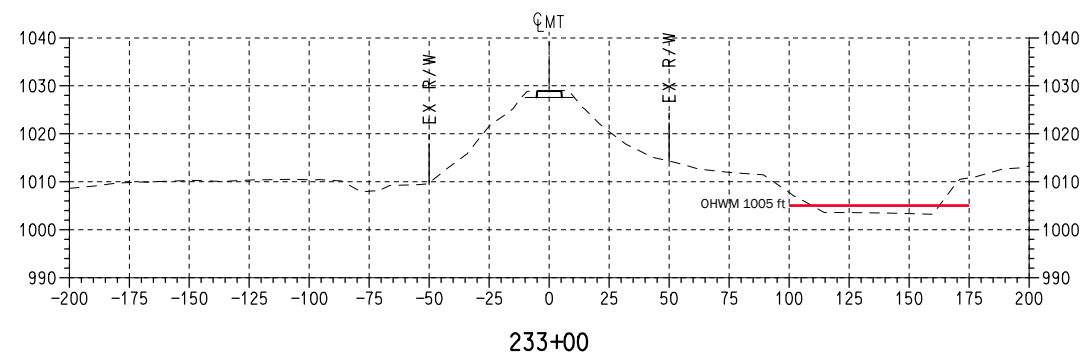




Mission Zanja Flood Control Channel - Mile Post 3.95



Mission Zanja Flood Control Channel - Mile Post 3.75



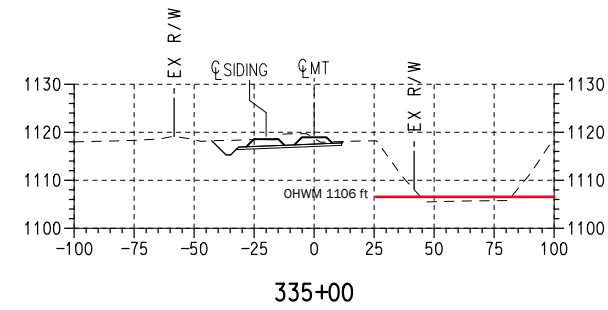
Mission Zanja Flood Control Channel (Mouth) - Mile Post 3.5



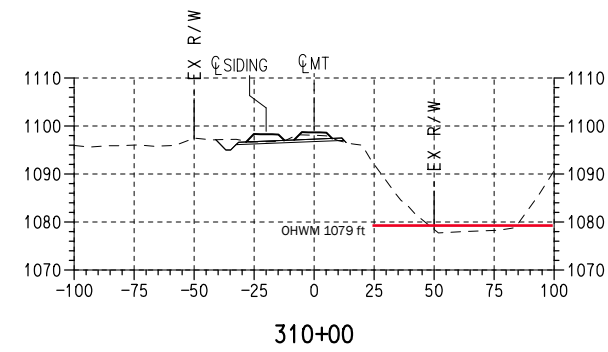
Exhibit D1. Channel Cross-Sections and OHWM



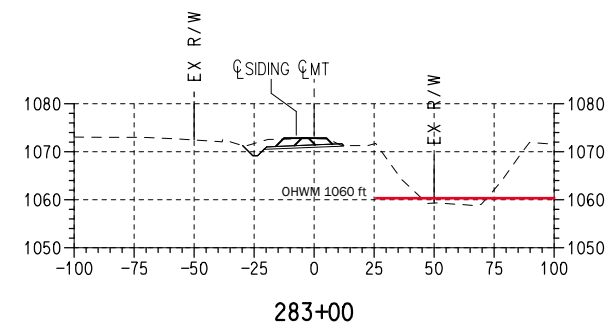




Mission Zanja Flood Control Channel - Mile Post 5.5



Mission Zanja Flood Control Channel - Mile Post 5

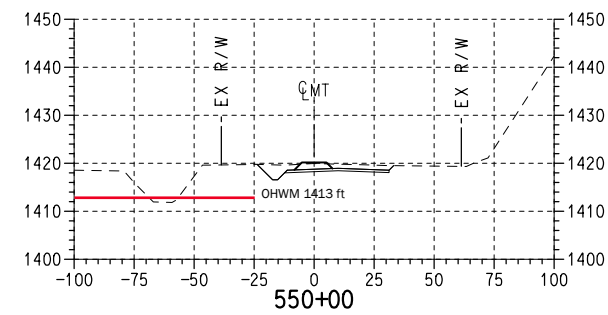


Mission Zanja Flood Control Channel - Mile Post 4.5

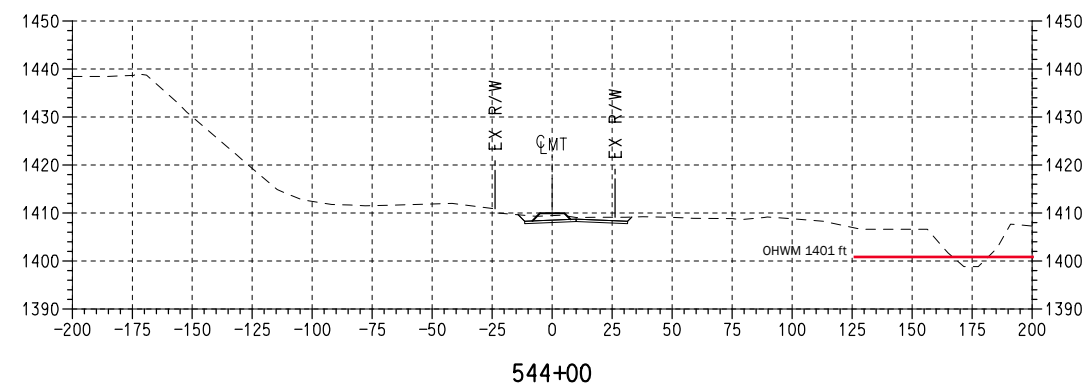




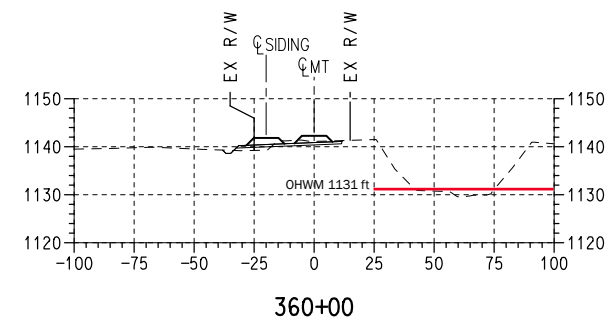




Mission Creek Zanja - Mile Post 9.5



Mill Creek Zanja - Mile Post 9.3 (approx.)



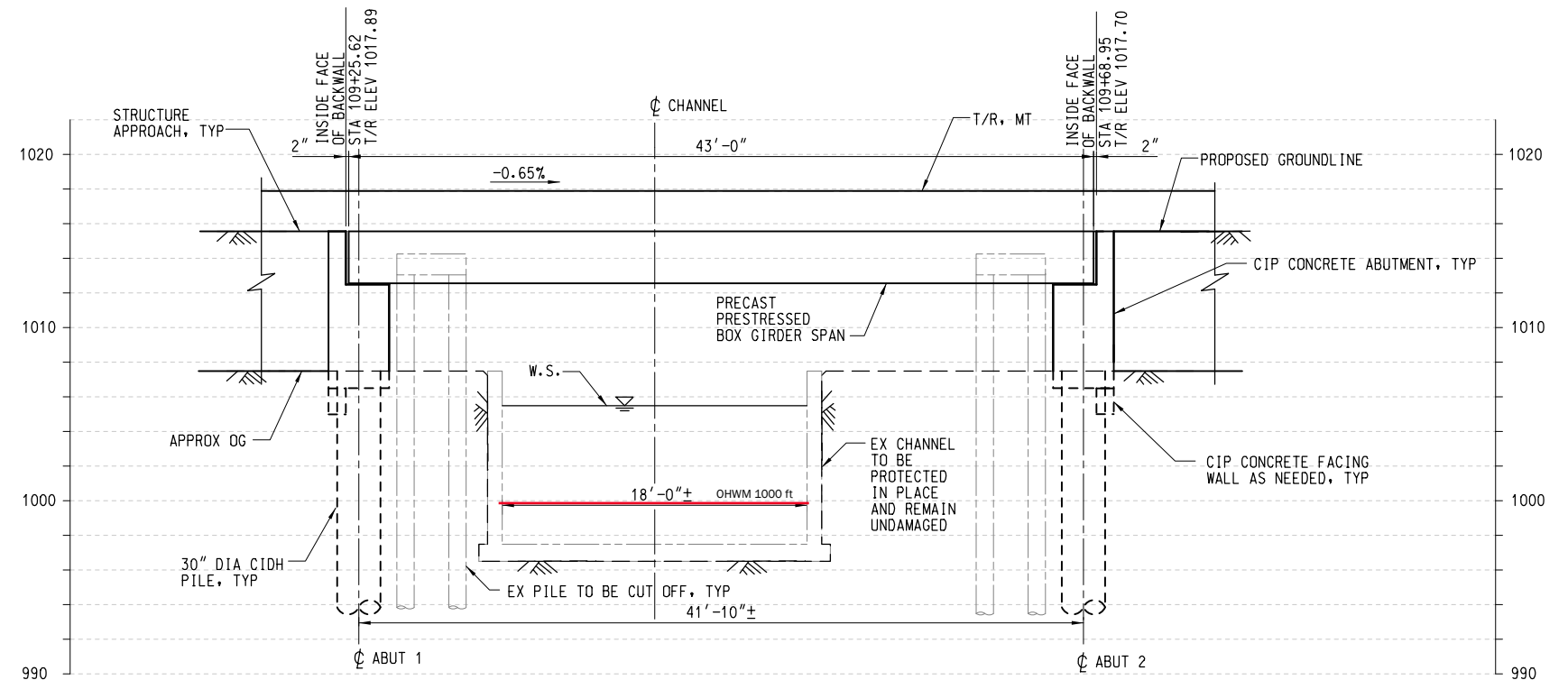
Mission Zanja Flood Control Channel - Mile Post 5.9 (approx.)



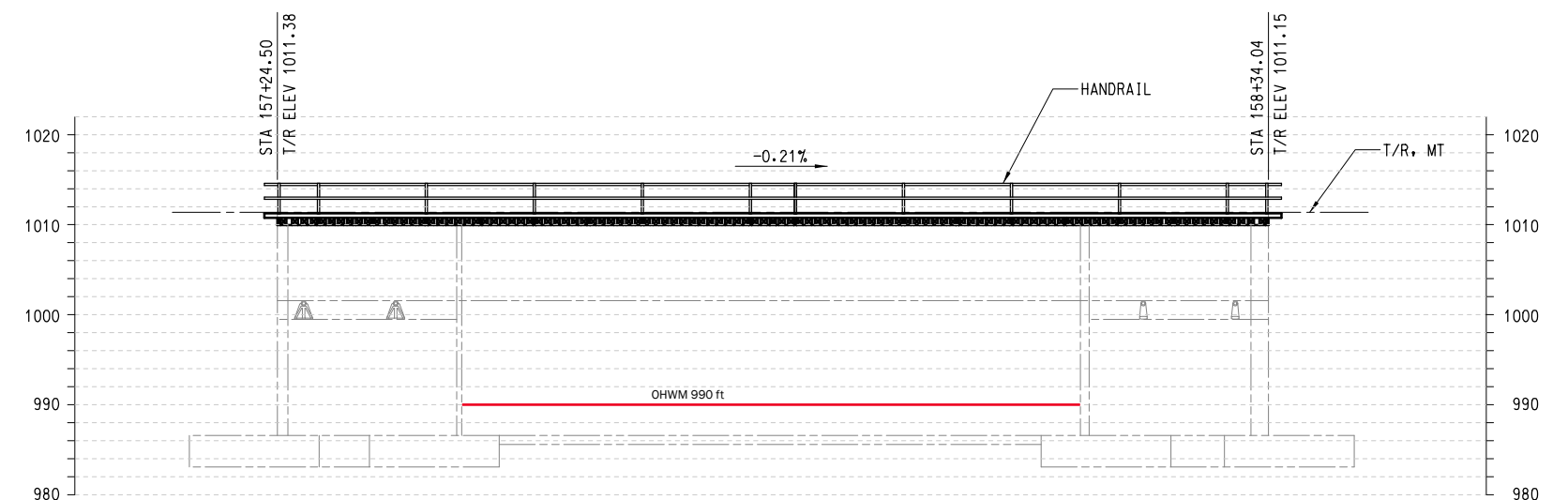
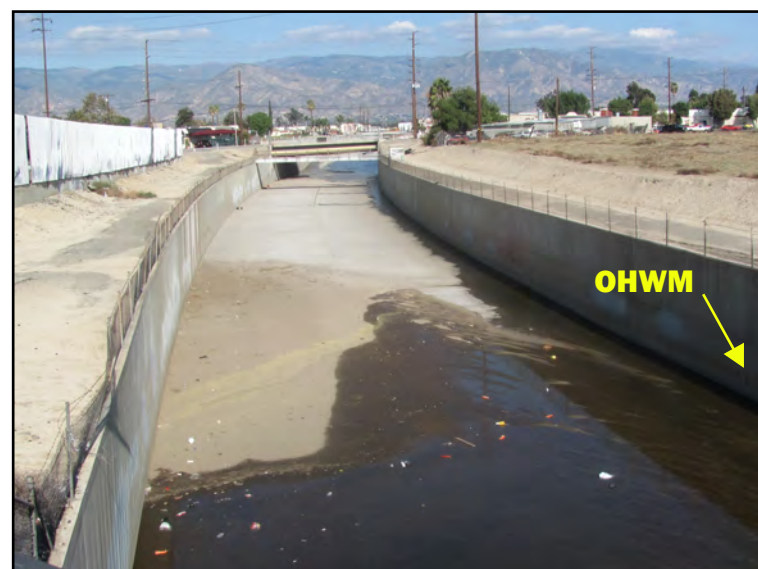
## Exhibit D3. Channel Cross-Sections and OHWM







Warm Creek (Historic)



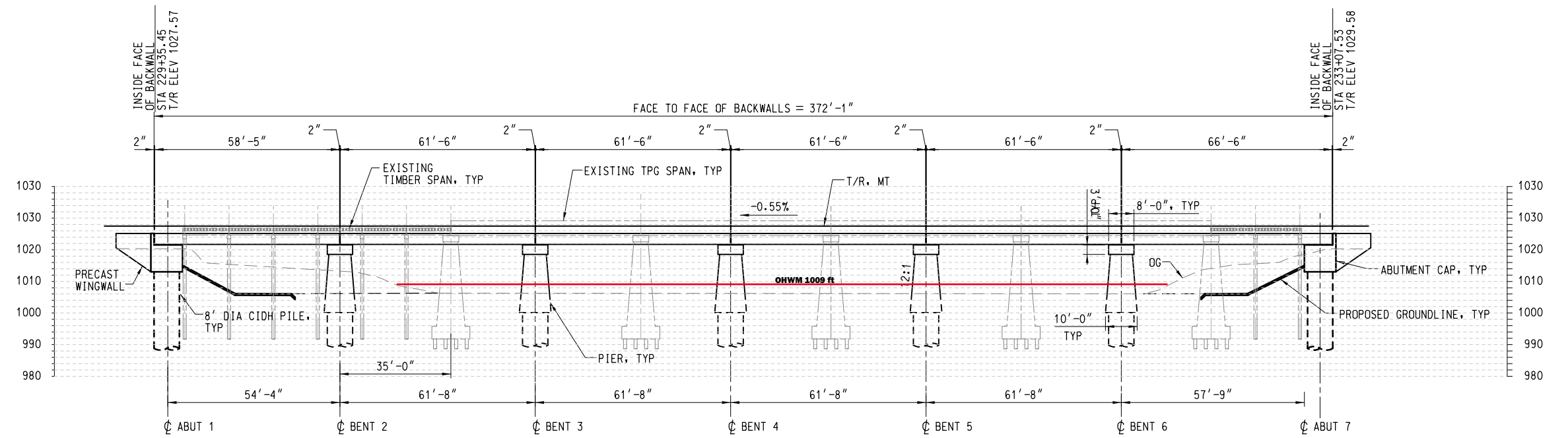
Twin Creek

LEGEND

- EXISTING STRUCTURE
- NEW STRUCTURE







BRIDGE 3.4 ELEVATION

SCALE: 1"=20'-0"

Santa Ana River



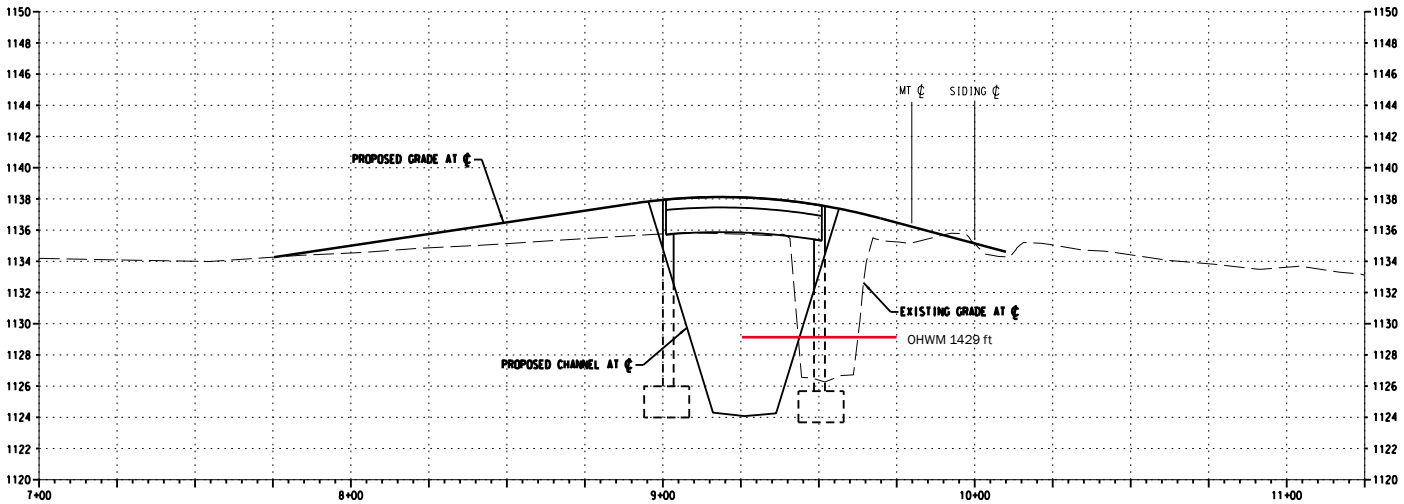
LEGEND

- EXISTING STRUCTURE
- NEW STRUCTURE

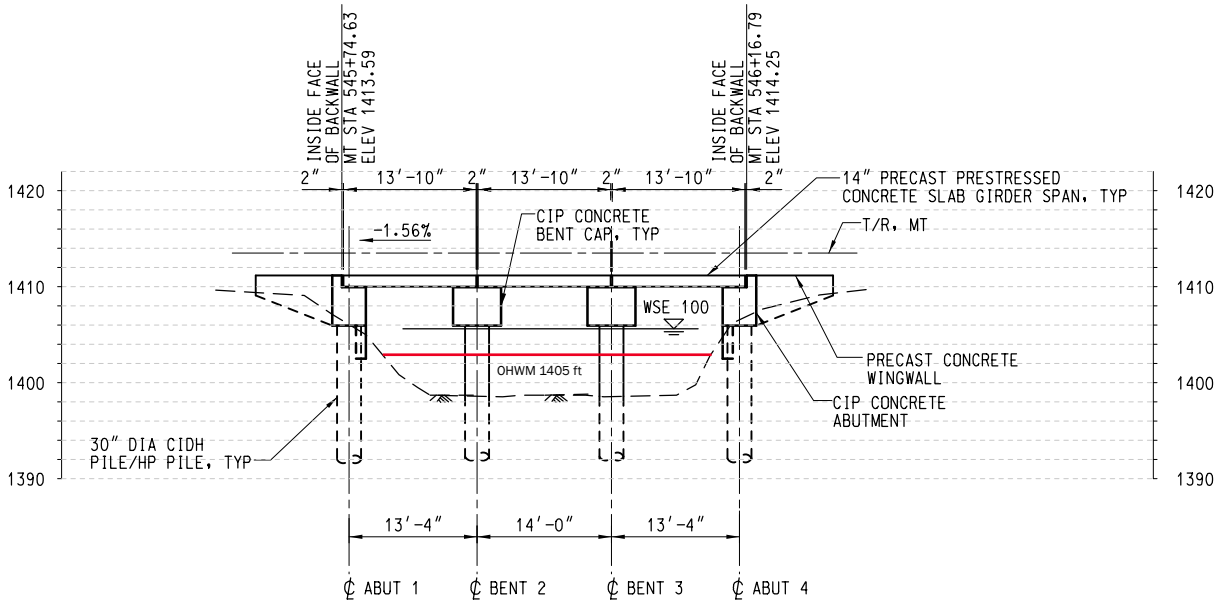
Exhibit D5. Channel Cross-Sections and OHWM







Bridge 5.78 - Bryn Mawr Avenue  
Mission Zanja Channel



BRIDGE 9.4 ELEVATION  
SCALE: 1"=10'-0"  
(NORMAL TO C CHANNEL)  
Mill Creek Zanja

LEGEND

- EXISTING STRUCTURE
- NEW STRUCTURE





**APPENDIX E**

**USACE Aquatic Resources Spreadsheet**





Waters_Name	Cowadin_Code	HGM_Code	Measurement_Type	Amount	Units	Waters_Types	Latitude	Longitude	Local_Waterway
NJD A1	U	slope	area	0.048392	ACRE	UPLAND	34.099703	-117.295621	unnamed
NJD A2	U	slope	area	0.011677	ACRE	UPLAND	34.099806	-117.292691	unnamed
NJD A3	U	slope	area	0.013096	ACRE	UPLAND	34.099848	-117.290939	unnamed
NJD B	U	slope	area	0.246098	ACRE	UPLAND	34.073846	-117.266153	unnamed
NJD C	U	slope	area	0.528106	ACRE	UPLAND	34.073632	-117.197716	unnamed
NJD D	U	slope	area	0.007323	ACRE	UPLAND	34.07023	-117.242046	unnamed
NJD E	U	slope	area	0.05148	ACRE	UPLAND	34.066212	-117.23545	unnamed
NJD F	U	slope	area	0.013934	ACRE	UPLAND	34.066208	-117.217928	unnamed
NJD G1	U	slope	area	0.11483843	ACRE	UPLAND	34.065019	-117.213966	unnamed
NJD G2	U	slope	area	0.007579	ACRE	UPLAND	34.064637	-117.212573	unnamed
NJD H1	U	slope	area	0.003383	ACRE	UPLAND	34.062977	-117.206985	unnamed
NJD H2	U	slope	area	0.003249	ACRE	UPLAND	34.062963	-117.206607	unnamed
NJD I1	U	slope	area	0.013048	ACRE	UPLAND	34.062764	-117.206414	unnamed
NJD I2	U	slope	area	0.164952	ACRE	UPLAND	34.062744	-117.203894	unnamed
NJD I3	U	slope	area	0.018452	ACRE	UPLAND	34.061539	-117.20145	unnamed
NJD I4	U	slope	area	0.053115	ACRE	UPLAND	34.060911	-117.199357	unnamed
NJD J1	U	slope	area	0.050988	ACRE	UPLAND	34.060267	-117.19636	unnamed
NJD J2	U	slope	area	0.02093	ACRE	UPLAND	34.059329	-117.192981	unnamed
Mill Creek Zanja	R4SB3	riverine	area	0.54576129	ACRE	RPW	34.058978	-117.172128	Mill Creek Zanja
Mission Zanja Flood Control Channel	R4SB3	riverine	area	8.64491012	ACRE	RPW	34.073778	-117.194519	Mission Zanja Flood Control Channel
Santa Ana River	R4SB4	riverine	area	5.135647	ACRE	RPW	34.075837	-117.270306	Santa Ana River
Twin Creek	R4SB (Concrete)	riverine	area	2.0674	ACRE	RPW	34.090557	-117.283157	Twin Creek
Warm Creek (Historic)	R4SB	riverine	area	0.349912	ACRE	RPW	34.099875	-117.2906	Warm Creek (Historic)
Twin Creek Wetland	R4SB7	riverine	area	0.046208	ACRE	RPWWD	34.0905	-117.283226	Twin Creek





## **APPENDIX F**

### **Non-Jurisdictional Attribute Data**





Non-Jurisdictional Drainage Information

Non-Jurisdictional Drainages	Map Page	Surface / Subsurface Connectivity (Y/N)	Typical Flow Regime	Channel Type	Water Type (Uplands or Natural Drainage)	Percent Developed	Surface Runoff			Drainage Area (Acres)	Discahrge Point
							Sheet-Flow Inputs	Dry Weather Urban Runoff Inputs	Upstream Natural Water Runoff Inputs		
NJD A1	5A	No	Seasonal	Earthen Ditch - See Photo (F1)	Uplands - See Figure F1	< 15%	Yes	Yes	No	4.4	Storm Drain
NJD A2	5A	No	Seasonal	Earthen Ditch - See Photo (F2)	Uplands - See Figure F1	76%	Yes	Yes	No	32.9	Storm Drain
NJD A3	5A	No	Seasonal	Concrete Spillway- See Photo (F3)	Uplands - See Figure F1	76%	Yes	Yes	No	4.3	Spillway
NJD B	5G	No	Seasonal	Earthen Ditch - See Photo (F4)	Uplands - See Figure F2	76%	Yes	Yes	No	5.0	Enclosed Basin
IW1	5H	No	Perenial	Isolated Wetland - See Photo (F5)	Uplands - See Figure F2	76%	Yes	Yes	No	2.1	Enclosed Basin
NJD C	5I	No	Seasonal	Earthen Ditch - See Photo (F6)	Uplands - See Figure F2	85%	Yes	Yes	No	3.5	Storm Drain
NJD D	5K	No	Seasonal	Concrete Ditch - See Photo (F7)	Uplands - See Figure F3	76%	Yes	Yes	No	9.4	Storm Drain
NJD E	5L	No	Seasonal	Concrete Ditch - See Photo (F8)	Uplands - See Figure F3	76%	Yes	Yes	No	193.8	Storm Drain
NJD F	5N	No	Seasonal	Concrete Ditch - See Photo (F9)	Uplands - See Figure F3	76%	Yes	Yes	No	142.4	Storm Drain
NJD G1	5N	No	Seasonal	Earthen Ditch - See Photo (F10)	Uplands - See Figure F3	76%	Yes	Yes	No	10.0	Storm Drain
NJD G2	5N	No	Seasonal	Earthen Ditch - See Photo (F11)	Uplands - See Figure F3	76%	Yes	Yes	No	9.2	Storm Drain
NJD H1	5O	No	Seasonal	Earthen Ditch - See Photo (F12)	Uplands - See Figure F3	76%	Yes	Yes	No	0.5	Storm Drain
NJD H2	5O	No	Seasonal	Earthen Ditch - See Photo (F13)	Uplands - See Figure F3	76%	Yes	Yes	No	23.6	Storm Drain
NJD I1	5O	No	Seasonal	Earthen Ditch - See Photo (F14)	Uplands - See Figure F3	65%	Yes	Yes	No	32.2	Storm Drain
NJD I2	5O	No	Seasonal	Concrete Ditch - See Photo (F15)	Uplands - See Figure F3	53%	Yes	Yes	No	29.4	Storm Drain
NJD I3	5P	No	Seasonal	Earthen Ditch - See Photo (F16)	Uplands - See Figure F3	90%	Yes	Yes	No	28	Storm Drain
NJD I4	5P	No	Seasonal	Earthen Ditch - See Photo (F17)	Uplands - See Figure F3	15%	Yes	Yes	No	0.4	Storm Drain
NJD J1	5P	No	Seasonal	Earthen Ditch - See Photo (F18)	Uplands - See Figure F3	23%	Yes	Yes	No	41.6	Storm Drain
NJD J2	5P/Q	No	Seasonal	Earthen Ditch - See Photo (F19)	Uplands - See Figure F3	41%	Yes	Yes	Yes	6.2	Storm Drain







NJD A1









NJD A2







NJD A3









NJD B











IW1









NJD C









NJD D







A photograph of a concrete drainage ditch, likely for stormwater management, running through a field. The ditch is V-shaped and made of concrete slabs. It is surrounded by tall, dry grass and some green plants with yellow flowers. In the background, there is a chain-link fence and a line of trees under a blue sky with some clouds. A red line points from the text 'NJD E' to the ditch.

NJD E









NJD F









NJD G1









NJD G2









NJD H1







NJD H2











NJD I1

















NJD I3









NJD 14









NJD J1







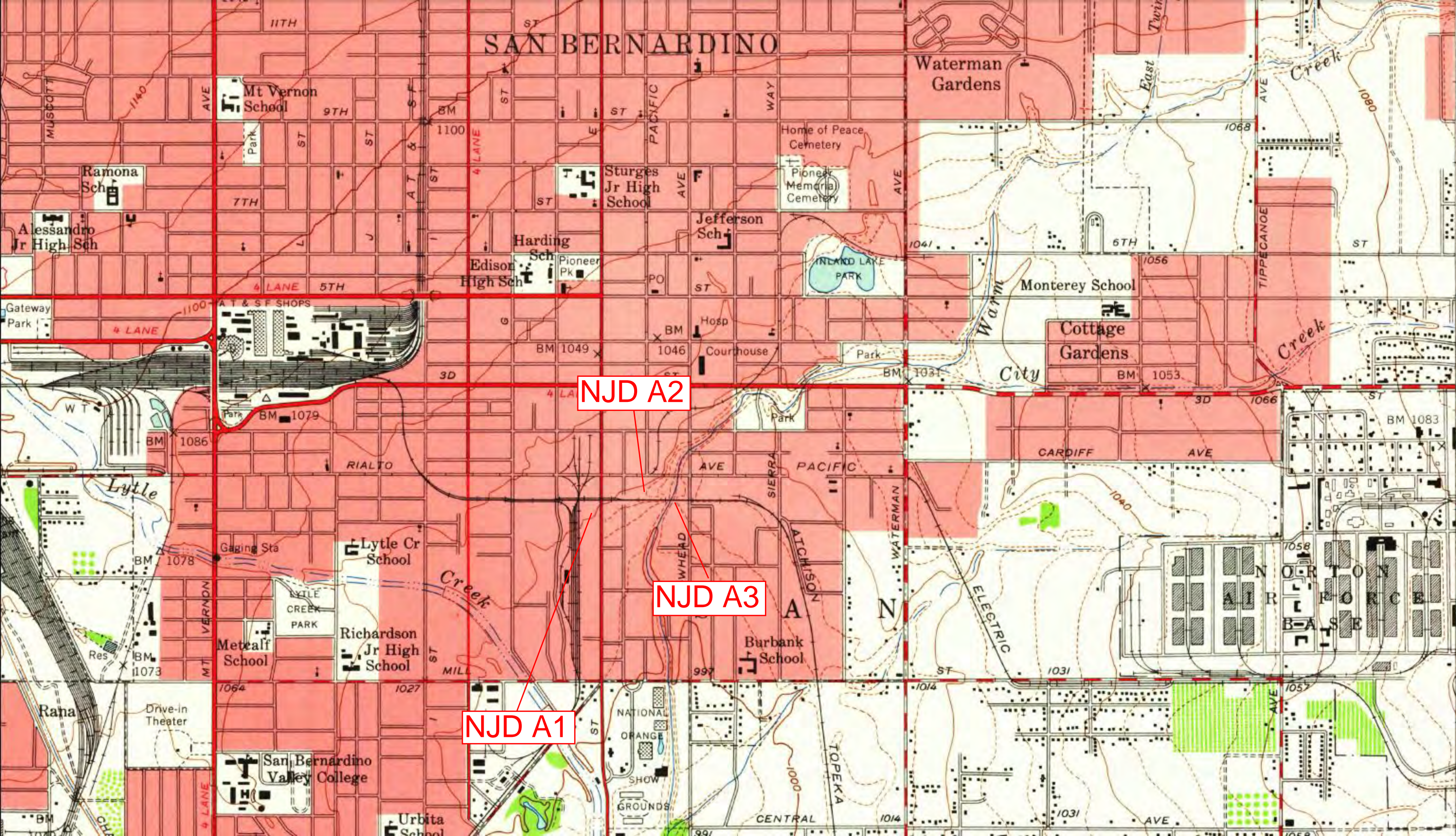
NJD J2











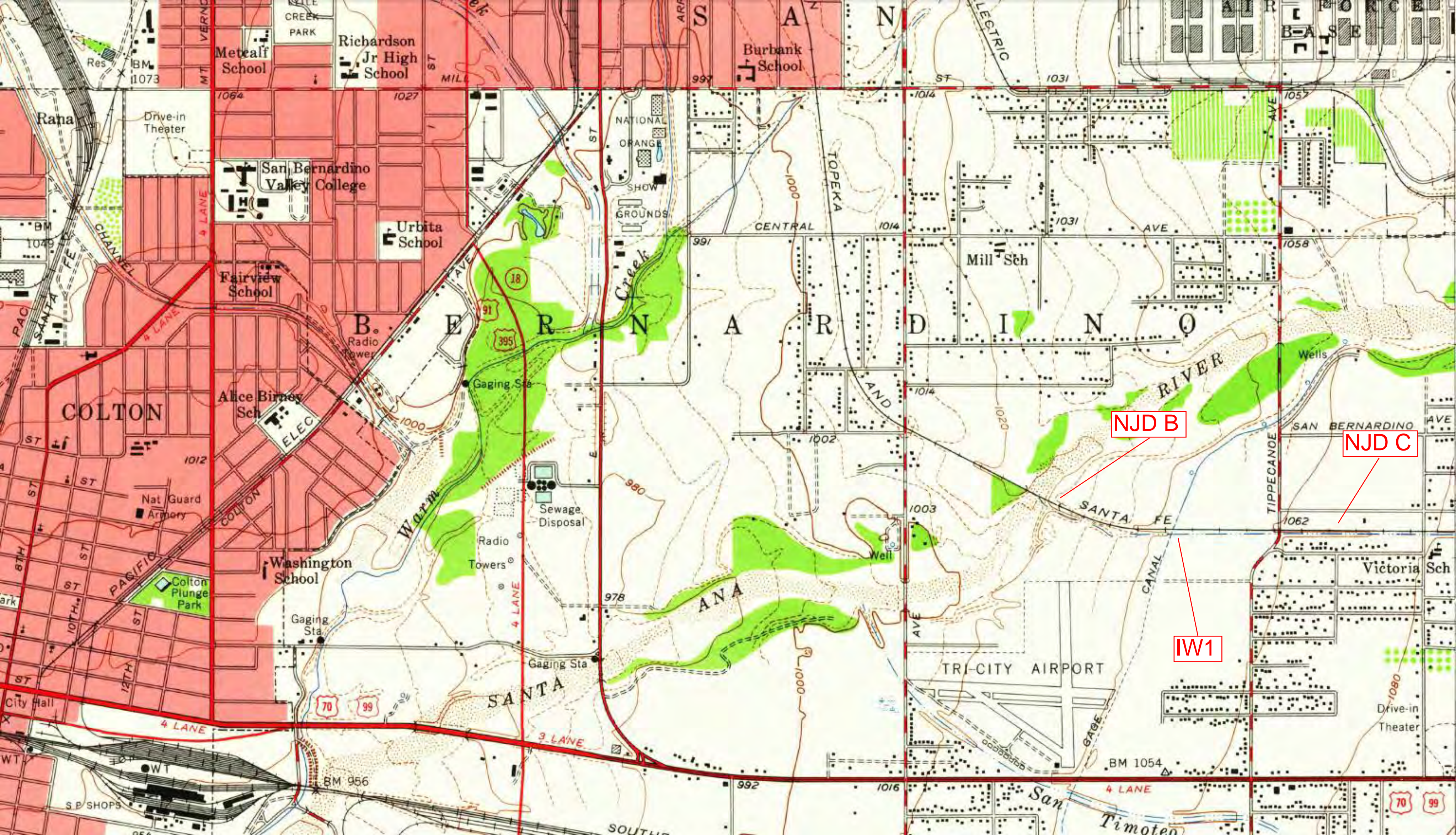
# SAN BERNARDINO

NJD A2

NJD A3

NJD A1



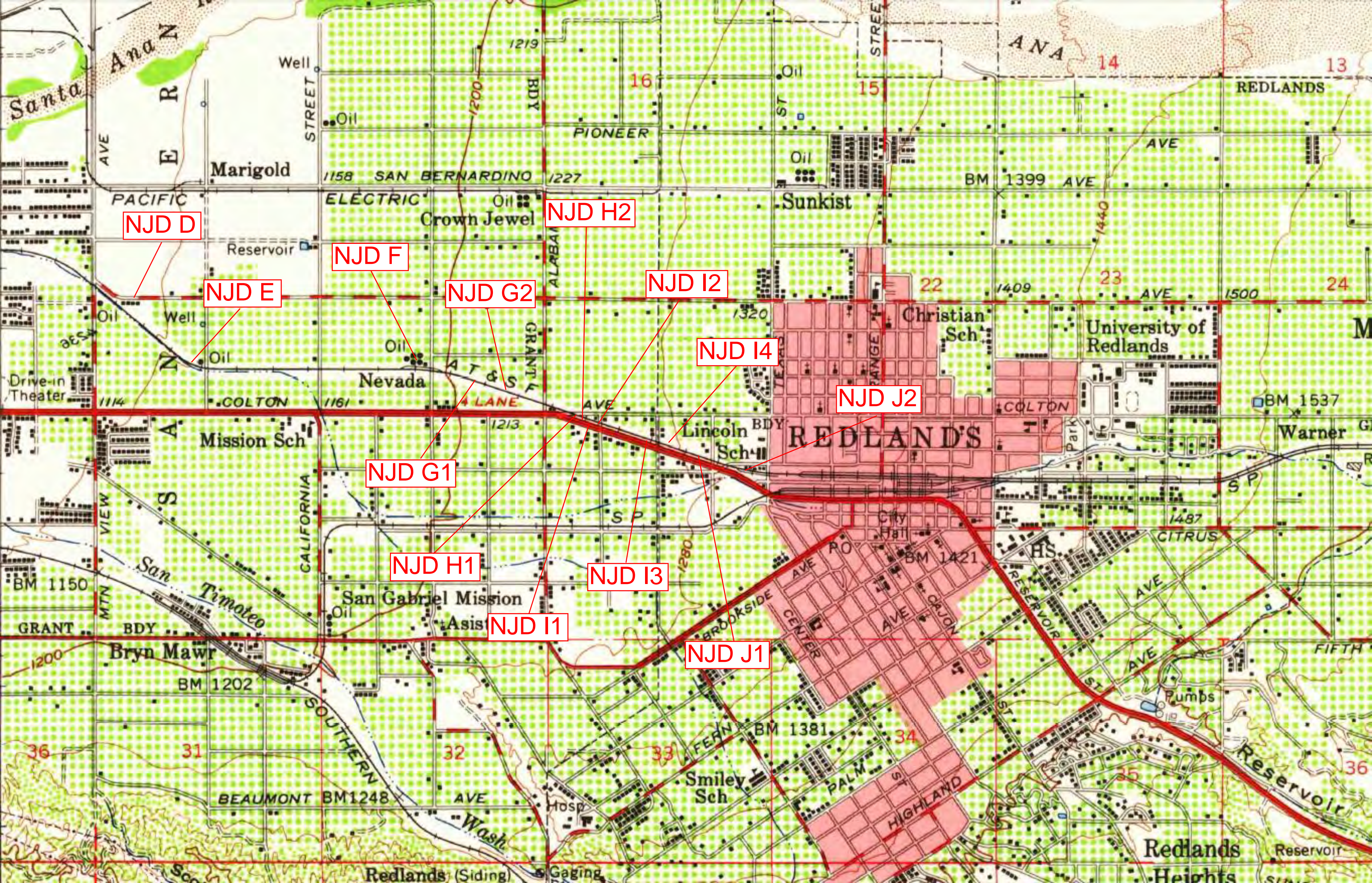


NJD B

NJD C

IW1







# **APPENDIX M**

## **Site Photographs**





## APPENDIX M

### Site Photographs



Photograph 1. Representative view of the disturbed habitat along the ROW.



Photograph 2. View of Twin Creek looking to the southwest.  
Soil pit #3 is on north side of creek and soil pit #4 is on the south side.  
The soil pit areas are disturbed wetland.





Photograph 3. View of eucalyptus woodland habitat along the southwestern side of the Santa Ana River.



Photograph 4. Mission Zanja Creek flowing into Santa Ana River. Disturbed habitat in the foreground and southern willow scrub habitat in the background. Northerly view.





Photograph 5. Northerly view of Warm Creek a non-vegetated channel.



Photograph 6. View of oak woodland looking north.





Photograph 7. Southern willow scrub looking easterly.



Photograph 8. Representative view of urban/developed habitat.



Photograph 9. Southeast side overflow of Santa Ana River.  
Northerly view.



Photograph 10. Northerly view of Mission Zanja Creek.





Photograph 11. Mill Creek Zanja. Northwestern view.



Photograph 12. Non-jurisdictional feature.





Photograph 13. Soil pit #1.



Photograph 14. Overview of soil pit #1 location.





Photograph 15. Overview of soil pit #2 location.



Photograph 16. Manufactured earthen berm separating the storm water runoff (soil pits #1 and #2) from Zanja Channel.



Photograph 17. North side of Twin Creek. Location of soil pit #3.



**This page intentionally left blank.**

# **APPENDIX N**

## **CNDDDB Results**







**Summary Table Report**  
California Department of Fish and Game  
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Accipiter cooperii</i> Cooper's hawk	G5 S3	None None	DFG_WL-Watch List IUCN_LC-Least Concern	1,460 1,460	102 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Anniella pulchra pulchra</i> silvery legless lizard	G3G4T3T4Q S3	None None	DFG_SSC-Species of Special Concern USFS_S-Sensitive	1,515 2,110	91 S:3	0	1	0	2	0	0	0	3	3	0	0
<i>Antrozous pallidus</i> pallid bat	G5 S3	None None	BLM_S-Sensitive DFG_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	1,360 1,360	402 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Arenaria paludicola</i> marsh sandwort	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 USFS_S-Sensitive	1,000 1,000	15 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Aspidoscelis hyperythra</i> orangethroat whiptail	G5 S2	None None	DFG_SSC-Species of Special Concern IUCN_LC-Least Concern	1,500 1,600	339 S:3	0	0	1	0	0	2	3	0	3	0	0
<i>Aspidoscelis tigris stejnegeri</i> coastal whiptail	G5T3T4 S2S3	None None		1,060 1,060	112 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Astragalus hornii</i> var. <i>hornii</i> Horn's milk-vetch	G4G5T2T3 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	1,000 1,000	14 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Athene cucularia</i> burrowing owl	G4 S2	None None	BLM_S-Sensitive DFG_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,090 1,170	1808 S:4	0	2	0	0	0	2	1	3	4	0	0
<i>Berberis nevinii</i> Nevin's barberry	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 USFS_S-Sensitive	1,500 1,600	34 S:3	0	0	1	1	0	1	2	1	3	0	0
<i>Calochortus plummerae</i> Plummer's mariposa-lily	G3 S3	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	1,500 1,500	232 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Carex comosa</i> bristly sedge	G5 S2	None None	Rare Plant Rank - 2.1	1,000 1,000	29 S:1	0	0	0	0	1	0	1	0	0	1	0





**Summary Table Report**  
**California Department of Fish and Game**  
**California Natural Diversity Database**



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Carolella busckana</i> Busck's gallmoth	G1G3 SH	None None		1,160 1,160	4 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Catostomus santaanae</i> Santa Ana sucker	G1 S1	Threatened None	AFS_TH-Threatened DFG_SSC-Species of Special Concern IUCN_VU-Vulnerable	838 880	27 S:2	0	0	1	0	0	1	0	2	2	0	0
<i>Caulanthus simulans</i> Payson's jewel-flower	G3 S3.2	None None	Rare Plant Rank - 4.2 USFS_S-Sensitive	2,000 2,000	39 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Centromadia pungens ssp. laevis</i> smooth tarplant	G3G4T2 S2.1	None None	Rare Plant Rank - 1B.1	1,000 1,050	81 S:2	0	0	0	0	0	2	1	1	2	0	0
<i>Chaetodipus fallax fallax</i> northwestern San Diego pocket mouse	G5T3 S2S3	None None	DFG_SSC-Species of Special Concern	1,150 2,100	88 S:10	0	1	2	1	0	6	0	10	10	0	0
<i>Chloropyron maritimum ssp. maritimum</i> salt marsh bird's-beak	G4?T2 S2.1	Endangered Endangered	Rare Plant Rank - 1B.2	1,000 1,000	29 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Chorizanthe parryi var. parryi</i> Parry's spineflower	G3T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive USFS_S-Sensitive	1,000 1,650	94 S:9	0	0	0	0	1	8	7	2	8	1	0
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	G5T3Q S1	Candidate Endangered	BLM_S-Sensitive USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	1,000 1,000	117 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Crotalus ruber</i> red-diamond rattlesnake	G4 S2?	None None	DFG_SSC-Species of Special Concern	1,800 1,800	115 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Cuscuta obtusiflora var. glandulosa</i> Peruvian dodder	G5T4T5 SH	None None	Rare Plant Rank - 2.2		6 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Dendroica petechia brewsteri</i> yellow warbler	G5T3? S2	None None	DFG_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	1,460 1,460	48 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Dipodomys merriami parvus</i> San Bernardino kangaroo rat	G5T1 S1	Endangered None	DFG_SSC-Species of Special Concern	1,030 1,550	47 S:15	2	0	4	2	1	6	2	13	14	1	0
<i>Dipodomys stephensi</i> Stephens' kangaroo rat	G2 S2	Endangered Threatened	IUCN_EN-Endangered	1,320 1,750	214 S:4	0	0	1	1	2	0	4	0	2	0	2
<i>Dodecahema leptoceras</i> slender-horned spineflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 USFS_S-Sensitive	1,100 2,200	35 S:8	0	1	1	0	2	4	4	4	6	1	1

Commercial Version -- Dated January, 3 2012 -- Biogeographic Data Branch  
Report Printed on Wednesday, January 11, 2012

Page 2 of 6  
Information Expires 7/3/2012



**Summary Table Report**  
California Department of Fish and Game  
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Empidonax traillii extimus</i> southwestern willow flycatcher	G5T1T2 S1	Endangered Endangered	ABC_WLBCC-Watch List of Birds of Conservation Concern	1,460 1,460	62 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Eremophila alpestris actia</i> California horned lark	G5T3Q S3	None None	DFG_WL-Watch List IUCN_LC-Least Concern	1,100 1,100	76 S:1	0	0	1	0	0	0	0	1	1	0	0
<i>Eriastrum densifolium ssp. sanctorum</i> Santa Ana River woollystar	G4T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 USFS_S-Sensitive	840 1,476	23 S:10	0	0	6	3	0	1	1	9	10	0	0
<i>Eumops perotis californicus</i> western mastiff bat	G5T4 S3?	None None	BLM_S-Sensitive DFG_SSC-Species of Special Concern WBWG_H-High Priority	1,380 1,380	293 S:3	0	0	0	1	0	2	2	1	3	0	0
<i>Galium californicum ssp. primum</i> Alvin Meadow bedstraw	G5T1Q S1	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	1,180 1,180	4 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Gila orcuttii</i> arroyo chub	G2 S2	None None	AFS_VU-Vulnerable DFG_SSC-Species of Special Concern USFS_S-Sensitive	838 880	49 S:2	0	0	1	1	0	0	0	2	2	0	0
<i>Helianthus nuttallii ssp. parishii</i> Los Angeles sunflower	G5TH SH	None None	Rare Plant Rank - 1A USFS_S-Sensitive	1,000 1,000	8 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Horkelia cuneata ssp. puberula</i> mesa horkelia	G4T2 S2.1	None None	Rare Plant Rank - 1B.1 USFS_S-Sensitive	1,100 1,100	58 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Icteria virens</i> yellow-breasted chat	G5 S3	None None	DFG_SSC-Species of Special Concern IUCN_LC-Least Concern	1,460 1,460	84 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Imperata brevifolia</i> California satintail	G2 S2.1	None None	Rare Plant Rank - 2.1 USFS_S-Sensitive	1,100 1,100	29 S:2	0	0	0	0	1	1	2	0	1	1	0
<i>Lanius ludovicianus</i> loggerhead shrike	G4 S4	None None	DFG_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,460 1,460	79 S:1	0	0	0	0	0	1	0	1	1	0	0





Summary Table Report  
California Department of Fish and Game  
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Lasiurus xanthinus</i> western yellow bat	G5 S3	None None	DFG_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_H-High Priority	1,050 1,400	57 S:4	0	0	0	0	0	4	1	3	4	0	0
<i>Lepidium virginicum</i> var. <i>robinsonii</i> Robinson's pepper-grass	G5T2? S2.2	None None	Rare Plant Rank - 1B.2	1,450 1,800	53 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit	G5T3? S3?	None None	DFG_SSC-Species of Special Concern	1,060 1,060	96 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Lycium parishii</i> Parish's desert-thorn	G3? S2S3	None None	Rare Plant Rank - 2.3	1,600 1,600	4 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Malacothamnus parishii</i> Parish's bush-mallow	GHQ SH	None None	Rare Plant Rank - 1A	1,290 1,290	1 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Monardella pringlei</i> Pringle's monardella	GX SX	None None	Rare Plant Rank - 1A	1,000 1,000	2 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Nasturtium gambelii</i> Gambel's water cress	G1 S1	Endangered Threatened	Rare Plant Rank - 1B.1 USFS_S-Sensitive	1,000 1,000	12 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	G5T3? S3?	None None	DFG_SSC-Species of Special Concern	1,200 1,560	115 S:2	0	1	1	0	0	0	0	2	2	0	0
<i>Nyctinomops femorosaccus</i> pocketed free-tailed bat	G4 S2S3	None None	DFG_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_M-Medium Priority	1,200 1,200	90 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Onychomys torridus ramona</i> southern grasshopper mouse	G5T3? S3?	None None	DFG_SSC-Species of Special Concern	1,180 1,180	26 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Perognathus longimembris brevinasus</i> Los Angeles pocket mouse	G5T1T2 S1S2	None None	DFG_SSC-Species of Special Concern USFS_S-Sensitive	1,000 1,300	49 S:6	1	0	1	0	0	4	2	4	6	0	0
<i>Phrynosoma blainvillii</i> coast horned lizard	G4G5 S3S4	None None	BLM_S-Sensitive DFG_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	1,000 1,400	658 S:4	0	0	0	0	1	3	4	0	3	0	1



**Summary Table Report**  
California Department of Fish and Game  
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Poliioptila californica californica</i> coastal California gnatcatcher	G3T2 S2	Threatened None	ABC_WLBCC-Watch List of Birds of Conservation Concern DFG_SSC-Species of Special Concern	1,100 1,620	800 S:6	0	2	0	0	0	4	2	4	6	0	0
<i>Rana muscosa</i> Sierra Madre yellow-legged frog	G1 S1	Endangered Candidate Endangered	DFG_SSC-Species of Special Concern IUCN_EN-Endangered USFS_S-Sensitive	1,800 1,800	165 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Rhaphiomidas terminatus abdominalis</i> Delhi Sands flower-loving fly	G1T1 S1	Endangered None		1,000 1,180	13 S:6	0	1	3	0	1	1	0	6	5	1	0
<i>Rhinichthys osculus ssp. 3</i> Santa Ana speckled dace	G5T1 S1	None None	AFS_TH-Threatened DFG_SSC-Species of Special Concern USFS_S-Sensitive	1,600 1,600	14 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Ribes divaricatum var. parishii</i> Parish's gooseberry	G4TH SH	None None	Rare Plant Rank - 1A	1,000 1,000	4 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Riversidian Alluvial Fan Sage Scrub</i> Riversidian Alluvial Fan Sage Scrub	G1 S1.1	None None		1,500 2,000	30 S:2	0	1	1	0	0	0	2	0	2	0	0
<i>Sidalcea neomexicana</i> Salt Spring checkerbloom	G4? S2S3	None None	Rare Plant Rank - 2.2	1,050 1,050	15 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Southern Coast Live Oak Riparian Forest</i> Southern Coast Live Oak Riparian Forest	G4 S4	None None		1,780 1,780	246 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Southern Cottonwood Willow Riparian Forest</i> Southern Cottonwood Willow Riparian Forest	G3 S3.2	None None		860 860	111 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Southern Riparian Scrub</i> Southern Riparian Scrub	G3 S3.2	None None		1,360 1,360	56 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Southern Sycamore Alder Riparian Woodland</i> Southern Sycamore Alder Riparian Woodland	G4 S4	None None		1,100 1,640	230 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Sphenopholis obtusata</i> prairie wedge grass	G5 S2.2	None None	Rare Plant Rank - 2.2	800 1,000	19 S:2	0	0	0	0	0	2	2	0	2	0	0





**Summary Table Report**  
California Department of Fish and Game  
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Symphotrichum defoliatum</i> San Bernardino aster	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive		76 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Taxidea taxus</i> American badger	G5 S4	None None	DFG_SSC-Species of Special Concern IUCN_LC-Least Concern	1,040 1,600	454 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Vireo bellii pusillus</i> least Bell's vireo	G5T2 S2	Endangered Endangered	ABC_WLBCC-Watch List of Birds of Conservation Concern IUCN_NT-Near Threatened	790 1,460	232 S:4	0	1	2	0	0	1	0	4	4	0	0